WADE-8075/WADE-8076

Mini-ITX Board

User's Manual

Version 1.1

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Appendix A

Appendix B

How to Use This Manual

The manual describes how to configure your WADE-8075 WADE-8076 system board to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of Single Host Board.

Chapter 1: System Overview. Presents what you have in the box and give you an overview of the product specifications and basic system architecture for this series model of single host board.

Chapter 2: Hardware Configuration. Show the definitions and locations of Jumpers and Connectors that you can easily configure your system.

Chapter 3: System Installation. Describes how to properly mount the CPU, main memory and Compact Flash to get a safe installation and provides a programming guide of Watch Dog Timer function.

Chapter 4: BIOS Setup Information. Specifies the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

Chapter 5: Troubleshooting. Provide various of useful tips to quickly get WADE-8075 WADE-8076 running with success. As basic hardware installation has been addressed in Chapter 3, this chapter will basically focus on system integration issues, in terms of backplane setup, BIOS setting, and OS diagnostics.

The content of this manual is subject to change without prior notice. These changes will be incorporated in new editions of the document. The vendor may make supplement or change in the products described in this document at any time.

Chapter 1
System Overview

1.1 Introduction

Powell Inc., a world-leading innovator in the Industrial PC (IPC) market and a member of the Intel® Communications Alliance, has launched its new WADE-8075 series in response to market demand for a simplified embedded system board (ESB) that combines a smaller footprint, lower power consumption, robust computing power and with longevity support.

Built with Intel's latest ICH8M chipset, WADE-8075 series take advantage of the Intel® Atom™ single (N455) or dual-core (D525) processors.
WADE-8075/WADE-8076 also features 24/18-bit LVDS display, fan less design and built-in DC 12V input.

WADE-8075 and WADE-8076's ability to drive two displays simultaneously makes them particularly suitable for lottery and gaming applications. They are also ideal for applications such as point-of-sale (POS), medical, digital signage, kiosks and surveillance security monitoring.

1.2 Check List

The WADE-8075/WADE-8076 package should cover the following basic items

- ✓ One WADE-8075/WADE-8076 Mini-ITX Main Board
- ✓ One SATA Cable
- ✓ One SATA Cable with power
- ✓ One I/O Shield bracket
- ✓ One Installation Resources CD-Title

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

1.3 Product Specification

- **Main Processor**

WADE-8075
  - Support Intel® Atom™ D525 dual-core processor
  - CPU clock speed: 1.8GHz

WADE-8076
  - Support Intel® Atom™ N455 single-core processor

  CPU clock speed: 1.67GHz

- **Chipset**
  Intel ICH8M chipset
- **System BIOS**
  uEFI BIOS
- **Main Memory**

WADE-8075
  Two 204-pin DDR3 SODIMM socket support up to 4GB single channel 800MHz

WADE-8076
  One 204-pin DDR3 SODIMM socket support up to 2GB single channel 800MHz

- **Expansion Interface**
  One PCI and One PCI-Express x 1 slots, Mini-PCIe socket with USB and PCIEx1 signal
- **SATA Interface**
  One SATA port
  Two SATA ports with power
- **Serial Port**
  Support three RS232 powered ports and one RS232/422/485 powered ports
- **USB Interface**
  Support six USB (Universal Serial Bus) ports, four on rear I/O and two on board header for internal devices
- **PS/2 Mouse and Keyboard Interface**
  One header for keyboard and mouse
- **Audio Interface**
  Connector for Mic-In, Line-In/out and Line-Out with header
- **Watch Dog Timer**
  - Support WDT function through software programming for enable/disable and interval setting
  - General system reset
- **On board VGA**
  - Intel® GMA 3150
  - Resolution up to 2048 * 1536@ 60 Hz
  - Intel® Dynamic Video Memory Technology support 4.0

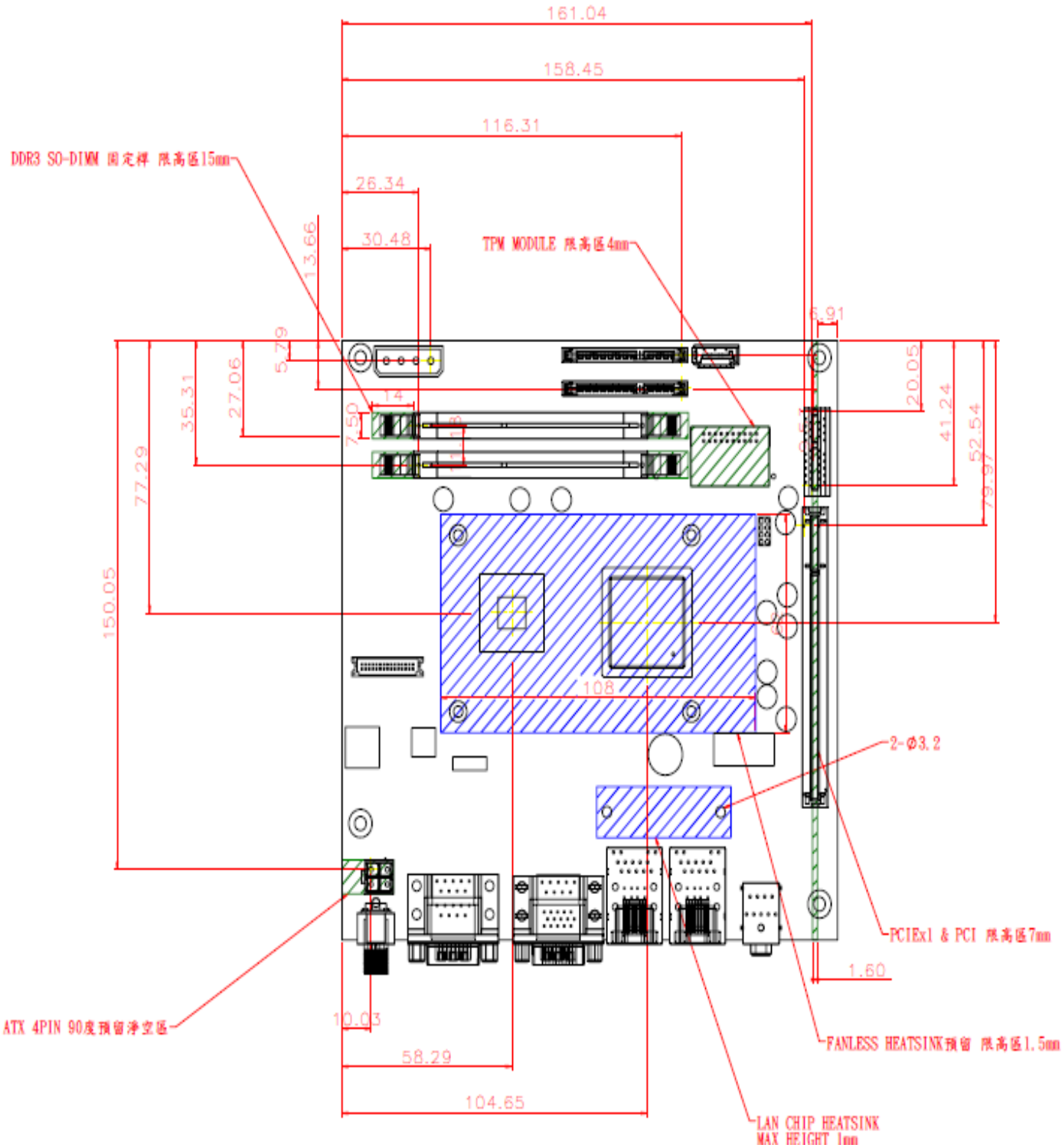
- **On board LVDS**
  - Dual Channel 24/18-bit(WADE-8075) / Single Channel 18-bit LVDS(WADE-8076)
  - Resolution 1280*1024
  - Intel® GMA 3150
  - Intel® Dynamic Video Memory Technology support 4.0
- **On-board Ethernet LAN**
  Two Gigabit Ethernet (10/100/1000 Mbits/sec) LAN ports using RTL8111D.
- **High Drive GPIO**
  On-board programmable 16-bit Digital I/O interface
- **Cooling Fans**
  Support one 3-pin power connector for CPU cooler and one 3-pin power connector for system fan
- **System Monitoring Feature**
  Monitor system temperature and major power sources.
- **Outline Dimension (L x W)**
  170mm(6.69'') x 170mm(6.69'')
- **Power Requirements**
  Configuration

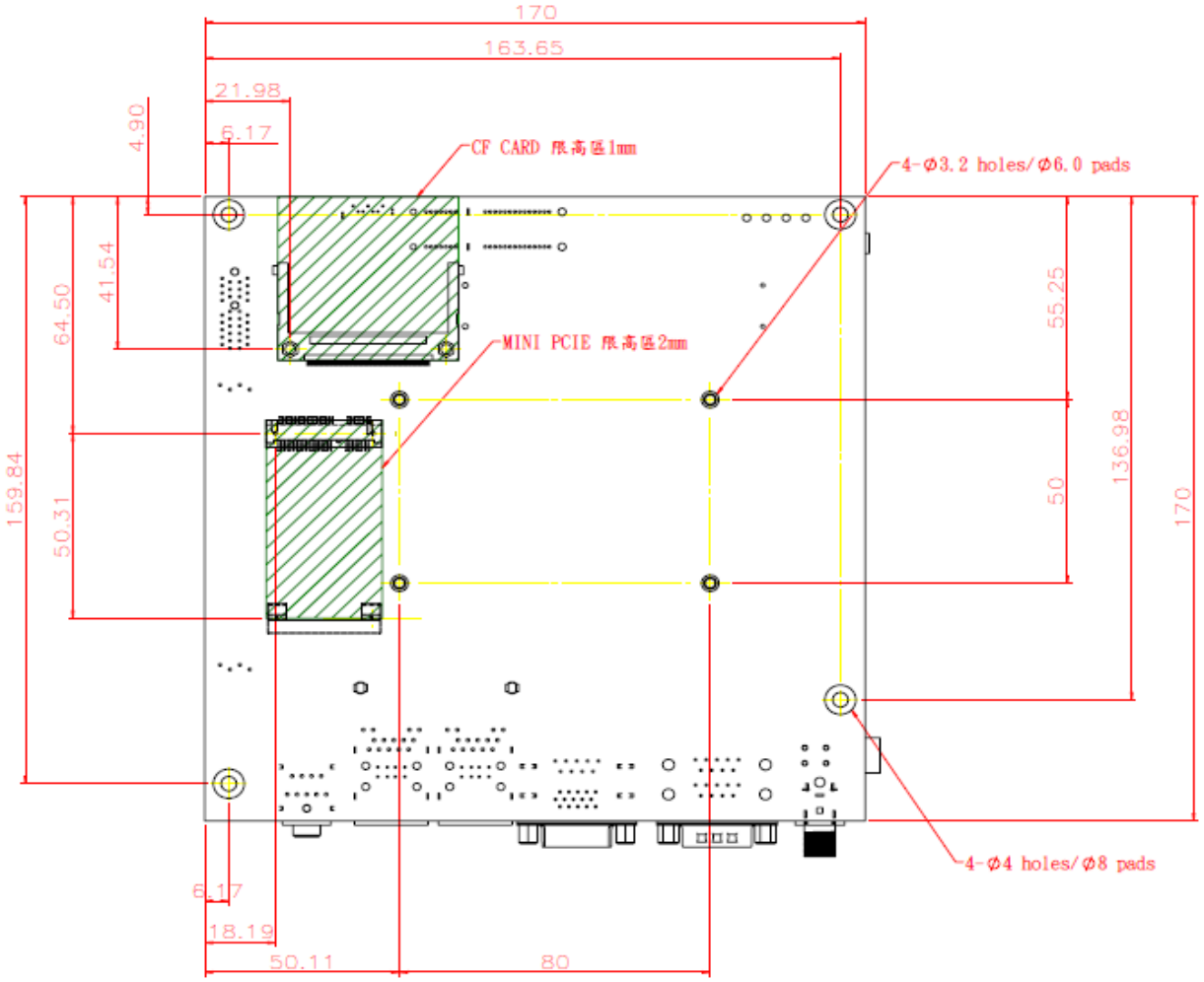
CPU Type	Intel® Atom™ CPU D525 @1.8GHz L2:1MB FSB:800MHz
SBC BIOS	Portwell,Inc. WADE-8075/WADE-8076 BIOS Rev.:R1.00.E0
Memory	Transcend DDR3 1066 2GB (ELPIDA J1108BDBG-DJ-F)
VGA Card	Onboard Intel® Luna Pier Graphics
VGA Driver	Intel® Graphics Accelerator Version 6.14.10.5134
LAN Card	Onboard Realtek RTL8111D GBE LAN
LAN Driver	Realtek PCIe GBE Family Controller Version 5.726.512.2009
Audio Card	Onboard Realtek ALC888 Audio
Audio Driver	Realtek high Definition Audio Version 5.10.05296
Chip Driver	Intel® Chipset Device Software Version 9.1.1.1019
SATA HDD	Seagate ST380815AS 160GB
Power Supply	Portwell,Inc APH-3020

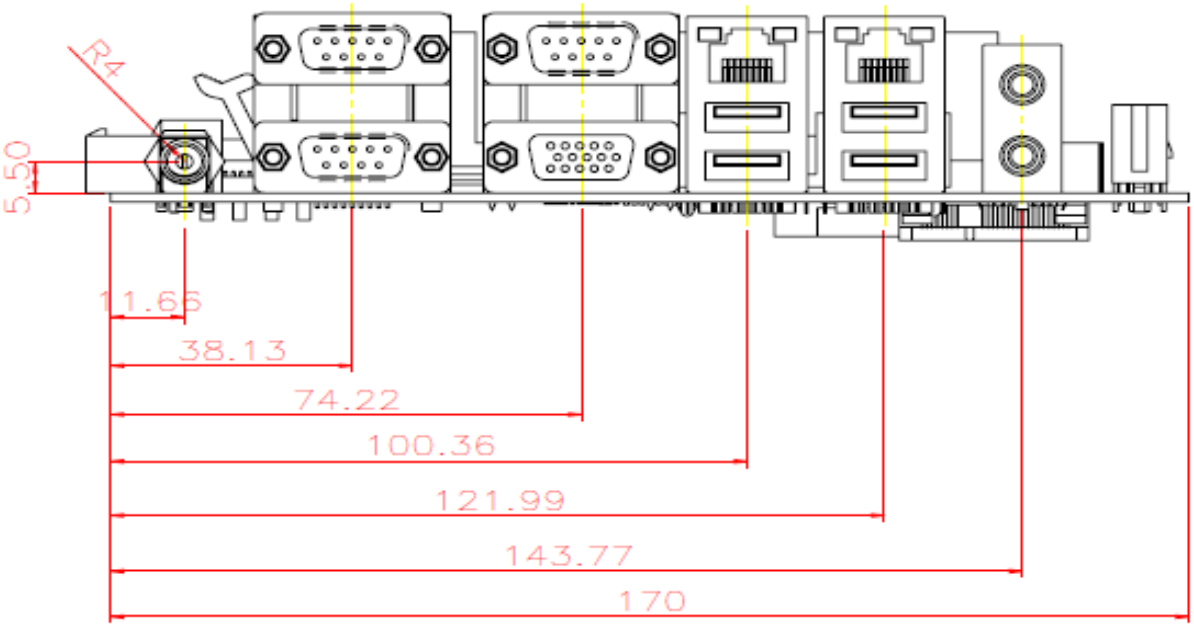
Item	**Power ON**	**Full Loading 10Min**	**Full Loading 30Min**
DC+12V	2.34	2.65	2.73
USB Loading Test	4.95 V/ 495 mA		

- **Operating Temperature**
  0 °C ~ 60 °C
- **Storage temperature**
  -20 ~ 80 °C
- **Relative Humidity**
  0% ~ 90%, non-condensing

1.3.1 Mechanical Drawing

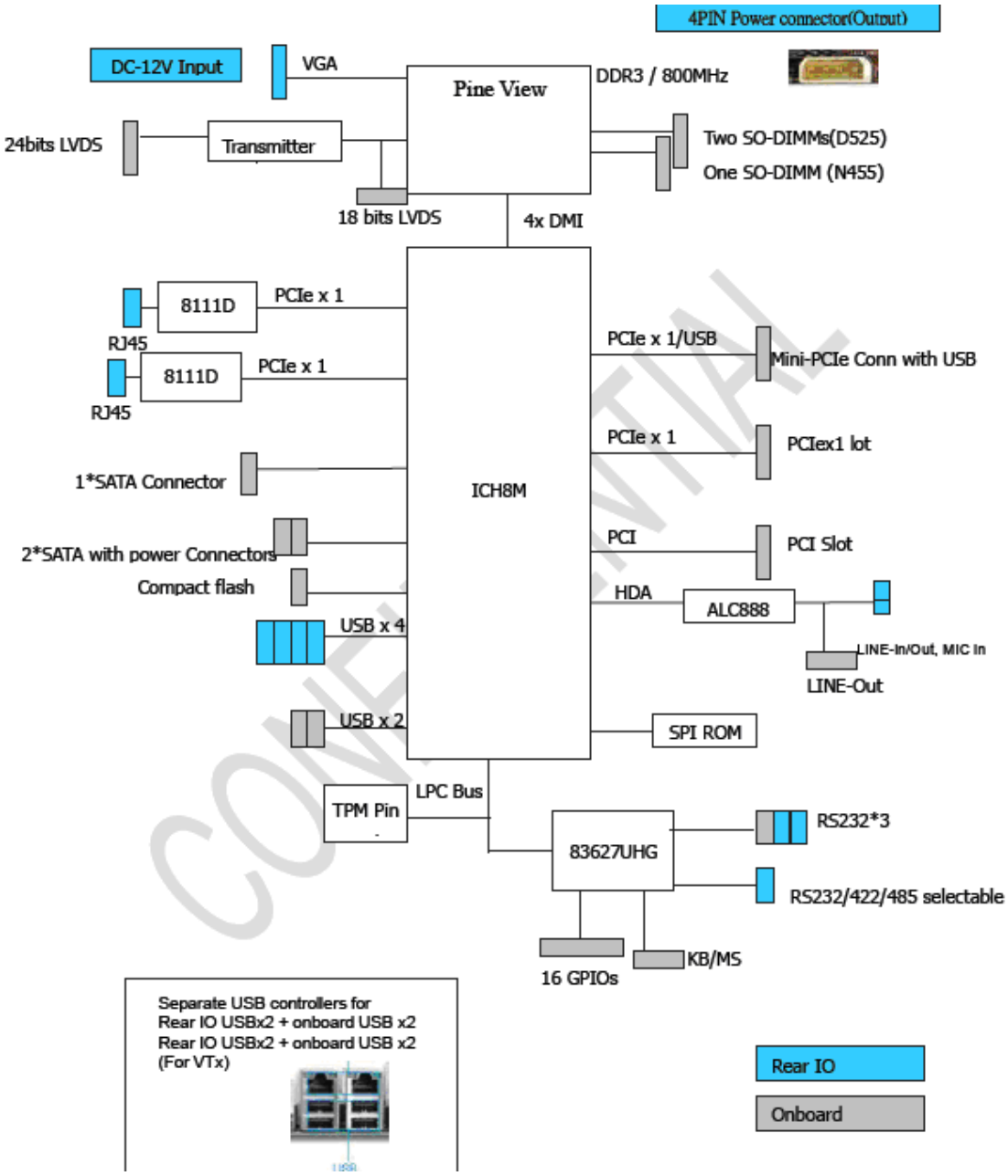



170
163.65
21.98
6.17
4.90
CF CARD 限高區1mm
4-Φ3.2 holes/Φ6.0 pads
41.54
64.50
159.84
50.31
MINI PCIE 限高區2mm
55.25
50
136.98
170
4-Φ4 holes/Φ8 pads
6.17
18.19
50.11
80


R4
5.50
11.65
38.13
74.22
100.36
121.99
143.77
170

1.4 System Architecture

All of details operating relations are shown in WADE-8075/WADE-8076 System Block Diagram.



WADE-8075/WADE-8076 System Block Diagram

Chapter 2
Hardware Configuration

This chapter indicates jumpers', headers' and connectors' locations. Users may find useful information related to hardware settings in this chapter. The default settings are indicated with a star sign (★).

2.1 Jumper Setting

For users to customize WADE-8075/WADE-8076's features. In the following sections, **Short** means covering a jumper cap over jumper pins; **Open** or **NC** (Not Connected) means removing a jumper cap from jumper pins. Users can refer to Figure 2-1 for the Jumper allocations.

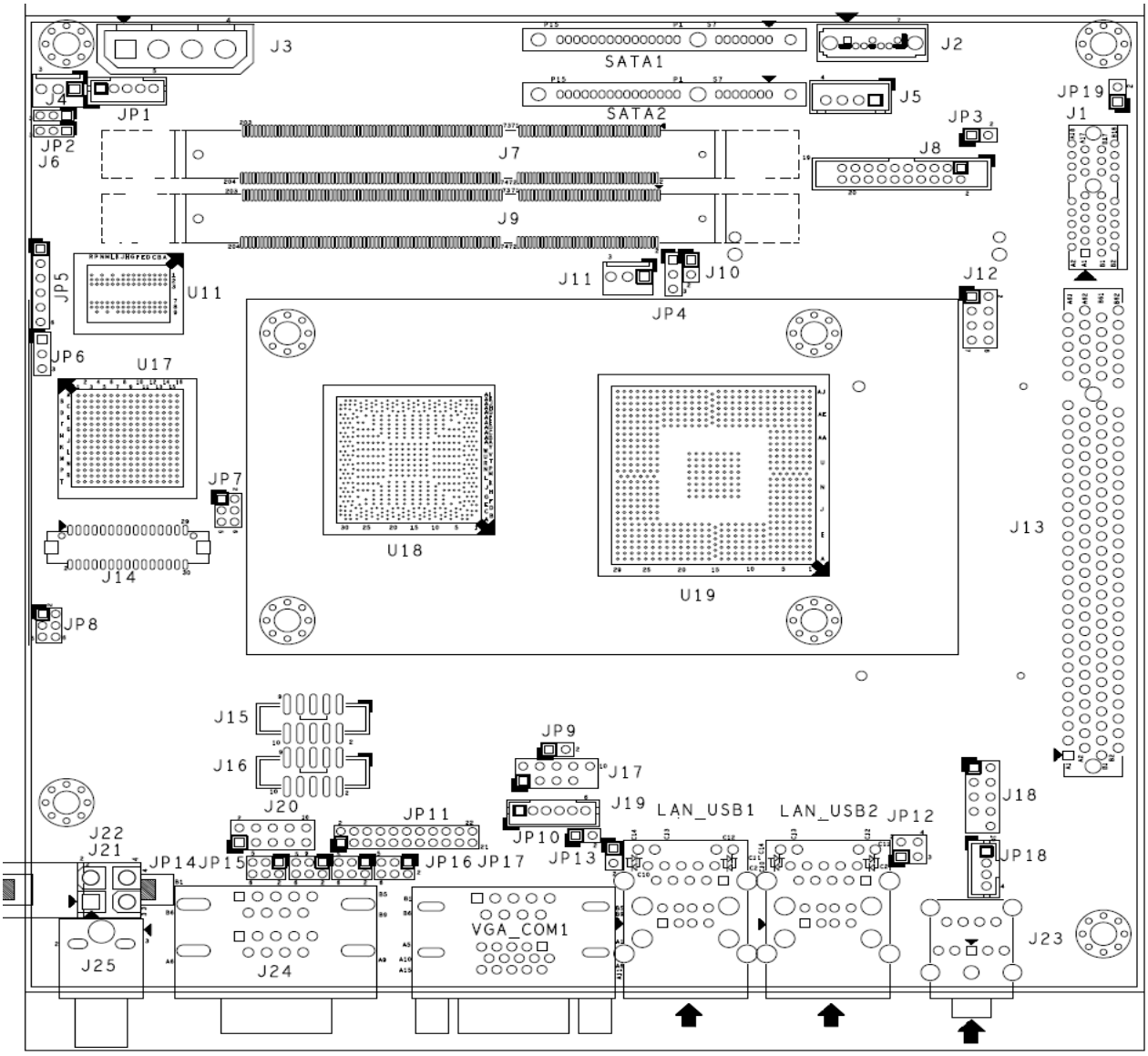


Figure 2-1 Top side

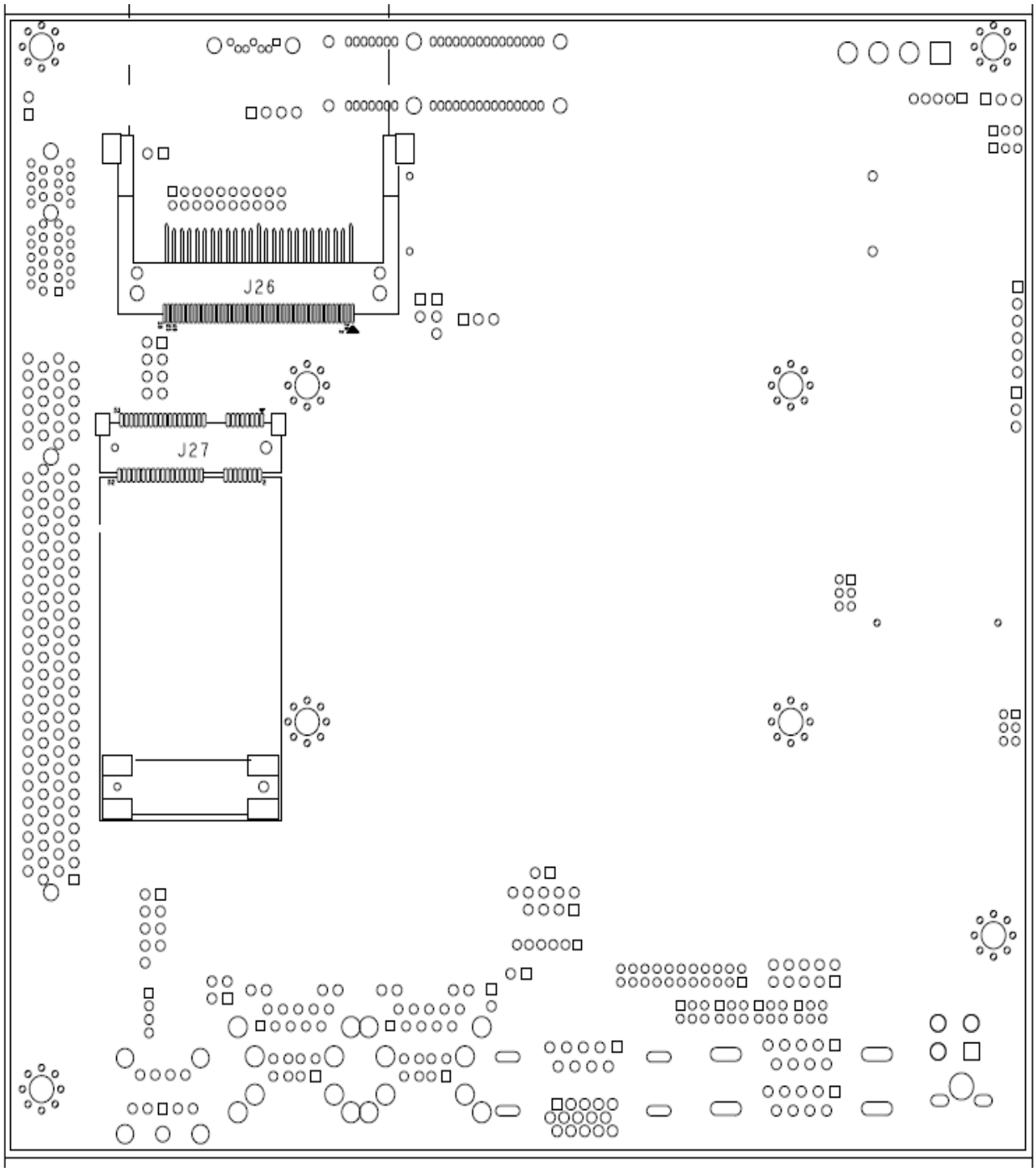


Figure 2-2 Solder side

The jumper settings are schematically depicted in this manual as follows:

JP2: LCD Panel Light Enable Voltage Setup

JP2	Function
1-2 Short	3.3V Level ★
2-3 Short	5V Level

JP3: Compact flash card Master/Slave Setup

JP3	Function
1-2 open	Slave ★
1-2 Short	Master

JP4: CMOS Clear

JP4	Function
1-2 Short	Normal Operation ★
2-3 Short	Clear CMOS Contents

JP5: Reserve for LVDS 18bit to 24 bit debug port

JP7: LVDS for 18 to 24 bits mode adjust(Part2)

JP7	Function
1-2 open, 3-4 open, 5-6 open	24bit 2CH panel
1-2 open, 3-4 short, 5-6 open	24bit 1CH panel (Open LDI mode)
1-2 short, 3-4 short, 5-6 open	24bit 1CH panel (SPWG mode)
1-2 open, 3-4 open, 5-6 short	18bit 1CH panel

JP8: Panel power select

JP8	Function
2-4 short	3.3V ★
4-6 short	5V
3-4 short	12V

JP11:COM3 RS232/RS422/RS485 Jumper Select

JP11	Function
5-6,9-11,10-12,15-17,16-18 Short	RS-232 ★
3-4,7-9,8-10,13-15,14-16,21-22 Short	RS-422
1-2,7-9,8-10,19-20 Short	RS-485

JP14/JP15/JP16/JP17: COM1,COM2,COM3,COM4 Jumper select

Pin No.	Signal Description
1-2 short	+5V
3-4 short	RI# ★
5-6 short	+12V

2.2 Connector Allocation

I/O peripheral devices are connected to the interface connectors.

Connector Function List

Connector	Function	Remark
J1	PCI-E X1	
J2	SATA PORT 3 CONNECTOR	
SATA1/SATA2	SATA PORT 1/2 CONNECTOR	
J3	BIG 4 PIN POWER CONNECTOR	output
J4	CPU FAN CONNECTOR	
J5	SATA POWER CONNECTOR	DC output for SATA HD
J6	RESERVE CONNECTOR	
J7	SO-DIMM 2 CONNECTOR	WADE-8076 N/A
J8	TPM MODULE CONNECTOR	
J9	SO-DIMM 1 CONNECTOR	
J11	SYSTEM FAN CONNECTOR	
J12	FRONT PANEL CONNECTOR	
J13	PCI SLOT	
J14	LVDS CONNECTOR	
J15/J16	GPIO CONNECTOR	
J17	RESERVE FOR LPC DEBUG PORT	
J18	USB CONNECTOR	
J19	PS/2 KB/MS CONNECTOR	
J20	COM4 CONNECTOR	
J21/J22	SMALL 4 PIN CONNECTOR	DC Input

		It can't be use with J25 at the same time
J23	AUDIO(D-SUB)	
J24	COM1/COM2(D-SUB)	
J25	DC-JACK	DC Input
J26	COMPACT FLASH SLOT	
J27	MINI PCI-E CONNECTOR	
VGA_COM1	VGA/COM3 (D-SUB)	
LAN_USB1/LAN_USB2	LAN/USB(D-SUB)	
JP1	INVERTER CONNECOTR	
JP9	CASE OPEN CONNECTOR	
JP10	LAN2 LINK/ACTIVE LED CONNECTOR	
JP12	LAN1 LINK/ACTIVE LED AND 10/100/1G LED CONNECTOR	
JP13	LAN2 10/100/1G LED CONNECTOR	
JP18	Audio Pin Header	
JP19	Hard disk LED	

Pin Assignments of Connectors

J1: PCI-EX1 PIN ASSIGNMENT

J2: SATA Connector

Pin No.	Signal Description
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

SATA1/SATA2: SATA Connector

Pin No.	Signal Description
S1	GND
S2	TX+
S3	TX-
S4	GND
S5	RX-
S6	RX+
S7	GND

Power:SATA Connector

Pin No.	Signal Description
P1	3.3V
P2	3.3V
P3	3.3V
P4	GND
P5	GND
P6	GND
P7	5V
P8	5V
P9	5V
P10	GND
P11	Reserve
P12	GND
P13	12V
P14	12V
P15	12V

J3: Big 4 pin power connector (out put)

Pin No.	Signal Description
1	12V
2	GND
3	GND
4	5V

J4: CPU Fan Connector

Pin No.	Signal Description
1	GND
2	PWM
3	SENSE

J5: SATA power output connector

Pin No.	Signal Description
1	12V
2	GND
3	GND
4	5V

J7/J9: DDR3 SO-DIMM Connector

J8: TPM Pin Header

PIN No.	Signal Description	PIN No.	Signal Description
1	PCLK_TPM	2	GND
3	LFRAME#	4	NC
5	PLT_RST#	6	VCC
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	SMB_CLK	14	SMB_DATA
15	3V_DUAL	16	SERIRQ
17	GND	18	NC
19	LPCPD#	20	NC

J11: System Fan Connector

Pin No.	Signal Description
1	GND
2	PWM
3	SENSE

J12: Front panel connector

PIN No.	Signal Description	PIN No.	Signal Description
1	+3.3V Standby (Suspend LED)	2	SUSLED Signal
3	+3.3V Power (Power LED)	4	GND
5	GND	6	RESET Signal
7	Power Button Signal	8	GND

J13: PCI Slot

J14: LVDS Connector

For WADE-8076 18 bits

Pin	Signal Name	Pin	Signal Name
2	VDD	1	VDD
4	LCD1DO0-	3	LCD1DO0+
6	LCD1DO1-	5	LCD1DO1+
8	LCD1DO2-	7	LCD1DO2+
10	N/C	9	N/C
12	LCD1CLK-	11	LCD1CLK+
14	LDATA1	13	LCLK1
16	Ground	15	Ground
18	N/C	17	N/C
20	N/C	19	N/C
22	N/C	21	N/C
24	N/C	23	N/C
26	N/C	25	N/C
28	N/C	27	N/C
30	N/C	29	N/C

For WADE-8075 24 bits

Pin	Signal Name	Pin	Signal Name
2	VDD	1	VDD
4	LCD1DO0-	3	LCD1DO0+
6	LCD1DO1-	5	LCD1DO1+
8	LCD1DO2-	7	LCD1DO2+
10	LCD1DO3-	9	LCD1DO3+
12	LCD1CLK-	11	LCD1CLK+
14	LDATA1	13	LCLK1
16	Ground	15	Ground
18	LCD2DO0-	17	LCD2DO0+
20	LCD2DO1-	19	LCD2DO1+
22	LCD2DO2-	21	LCD2DO2+
24	LCD2DO3-	23	LCD2DO3+
26	LCD2CLK-	25	LCD2CLK+
28	N/C	27	N/C
30	Ground	29	Ground

J15: GPIO pin Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	GPIO9	2	GPIO13
3	GPIO10	4	GPIO14
5	GPIO11	6	GPIO15
7	GPIO12	8	GPIO16
9	GND	10	5V

J16: GPIO pin Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	GPIO1	2	GPIO5
3	GPIO2	4	GPIO6
5	GPIO3	6	GPIO7
7	GPIO4	8	GPIO8
9	GND	10	5V

J18: USB Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	5V_DUAL	2	5V_DUAL
3	D-	4	D-
5	D+	6	D+
7	GND	8	GND
9	KEY	10	GND

J19: PS2 Keyboard/Mouse Connector

Pin No.	Signal Description
1	Keyboard Clock
2	Mouse Data
3	Keyboard data
4	Keyboard 5V Power
5	Mouse Clock
6	Gnd

J20 COM4 CONNECTOR

PIN No.	Signal Description	PIN No.	Signal Description
1	DCD#6	2	DSR#6
3	RXD#6	4	RTS#6
5	TXD#6	6	CTS#6
7	DTR#6	8	RI#6
9	GND	10	NC

J21/J22: Small 4 pin Power input connector (It can't be use with J25 at the same time)

Pin No.	Signal Description
1	GND
2	GND
3	+12V
4	+12V

J23: Audio Jack(D-SUB)

J24: COM Port(D-SUB)

J25: DC Jack(DC input)

J26: Compact Flash Socket

J27: Mini-PCI-E Socket

LAN_USB1/LAN_USB2:LAN/USB(D-SUB)

JP1: LVDS Inverter Connector

Pin No.	Signal Description
1	+5V
2	GND
3	+12V
4	GND
5	LCD BL EN

JP9: Case Open Connector

Pin No.	Signal Description
1	Case Open Signal
2	GND

JP10: LAN2 Active/Link LED Connector

Pin No.	Signal Description
1	Link Signal -
2	Active Signal-

JP12: LAN1 Active/Link 10/100/1G LED Connector

Pin No.	Signal Description
1	Link Signal -
2	Active Signal-
3	100 Signal-
4	1G Signal-

JP13: LAN2 10/100/1G LED Connector

Pin No.	Signal Description
1	100 Signal -
2	1G Signal-

JP18: Audio Connector

Pin No.	Signal Description
1	Line out Left
2	Gnd
3	Line out Right
4	Gnd

JP19: Hard disk LED Connector

Pin No.	Signal Description
1	+5V
2	Hard disk signal -

Chapter 3
System Installation

This chapter provides you with instructions to set up your system. The additional information is enclosed to help you set up onboard PCI device and handle Watch Dog Timer (WDT) and operation of GPIO in software programming.

3.1 Intel Atom D525 CPU

- Intel® Atom D525 Processor (1M Cache, 1.8GHz, Max TDP 13 Watts)

3.2 Main Memory

WADE-8075 provide 2 x 204pin SO-DIMM sockets which supports single channel 800 DDR3-SDRAM as main memory, Non-ECC (Error Checking and Correcting), non-register functions. The maximum memory can be up to 4GB. Memory clock and related settings can be detected by BIOS via SPD interface.

For system compatibility and stability, do not use memory module without brand. Memory configuration can be set to either one double-sided DIMM in one DIMM socket or two single-sided SO-DIMM in both sockets.

Beware of the connection and lock integrity from memory module to socket. Inserting improperly it will affect the system reliability.

Before locking, make sure that all modules have been fully inserted into the card slots.

Note:

To insure the system stability, please do not change any of DRAM parameters in BIOS setup to modify system the performance without acquired technical information.

3.3 Installing the Single Board Computer

To install your WADE-8075 into standard chassis or proprietary environment, please perform the following:

Step 1 : Check all jumpers setting on proper position

Step 2 : Install and configure CPU and memory module on right position
Step 3 : Place WADE-8075 into the dedicated position in the system
Step 4 : Attach cables to existing peripheral devices and secure it

WARNING
Please ensure that SBC is properly inserted and fixed by mechanism.

Note:
Please refer to section 3.3.1 to 3.3.7 to install INF/VGA/LAN/Audio drivers.

3.3.1 Chipset Component Driver

WADE-8075 uses state-of-art Intel®D525 CPU. It's a new chipset that some old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows XP, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in WADE-8075 CD-title.

3.3.2 Intel® Integrated Graphics Controller

WADE-8075 uses Intel® Luna Pier integrated graphic chipset to gain an outstanding graphic performance. WADE-8075 supports VGA, LVDS (18bit or 24bit) dual display. This combination makes WADE-8075 an excellent piece of multimedia hardware.

Drivers Support

Please find the Graphic drivers in the WADE-8075 CD-title. Drivers support, Windows XP/Vista/Win7.

3.3.3 On-board Gigabit Ethernet Controller

Drivers Support

Please find Realtek 8111D LAN driver in /Ethernet directory of WADE-8075 CD-title. The drivers support Windows XP/Vista/Win7.

3.3.4 Audio Controller

Please find Realtek ALC888 (High Definition Audio driver) form WADE-8075 CD-title. The drivers support Windows XP/Vista/Win7.

3.4 Clear CMOS Operation

The following table indicates how to enable/disable Clear CMOS Function hardware circuit by putting jumpers at proper position.

JP4: CMOS Clear

JP4	Function
1-2 Short	Normal Operation ★
2-3 Short	Clear CMOS Contents

3.5 WDT Function

The Watchdog Timer of motherboard consists of 8-bit programmable time-out counter and a control and status register.

WDT Controller Register
There are two PNP I/O port addresses that can be used to configure WDT.

2Eh: EFIR (Extended Function Index Register, for identifying CR index number)
2Fh: EFDR (Extended Function Data Register, for accessing desired CR)

WDT Control Mode Register
The working algorithm of the WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval settings by software or hardware varies from boards to boards.

WADE-8075 allows users to control WDT through dynamic software programming. The WDT starts counting when it is activated. It sends out a signal to system reset or to non-maskable interrupt (NMI), when time-out interval ends. To prevent the time-out interval from running out, a re-trigger signal will need to be sent before the counting reaches its end. This action will restart the counting process. A well-written WDT program should keep the counting process running under normal condition. WDT should never generate a system reset or NMI signal unless the system runs into troubles.

The related Control Registers of WDT are all included in the following sample program that is written in C language. User can fill a non-zero value into the Time-out Value Register to enable/refresh WDT. System will be reset after the Time-out Value to be counted down to zero. Or user can directly fill a zero value into Time-out Value Register to disable WDT immediately. To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

Additionally, there are maximum 2 seconds of counting tolerance that should be considered into user' application program. For more information about WDT, please refer to Winbond W83627UHG data sheet.

There are two PNP I/O port addresses that can be used to configure WDT,
1) 0x2E:EFIR (Extended Function Index Register, for identifying CR index number)
2) 0x2F:EFDR (Extended Function Data Register, for accessing desired CR)

WDT Control Command Example

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);
// Enable Pin 77 as WDTO#
// Select Logic Device 8
outp(0x002E, 0x07);
outp(0x002F, 0x08);
// Active Logic Device 8
outp(0x002E, 0x30);
outp(0x002F, 0x01);
// Select Count Mode
outp(0x002E, 0xF5);
outp(0x002F, (inp(0x002F) & 0xF7) | ( Count-mode Register & 0x08));
// Specify Time-out Value
outp(0x002E, 0xF6);
outp(0x002F, Time-out Value Register );
// Disable WDT reset by keyboard/mouse interrupts
outp(0x002E, 0xF7);
outp(0x002F, 0x00);
// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

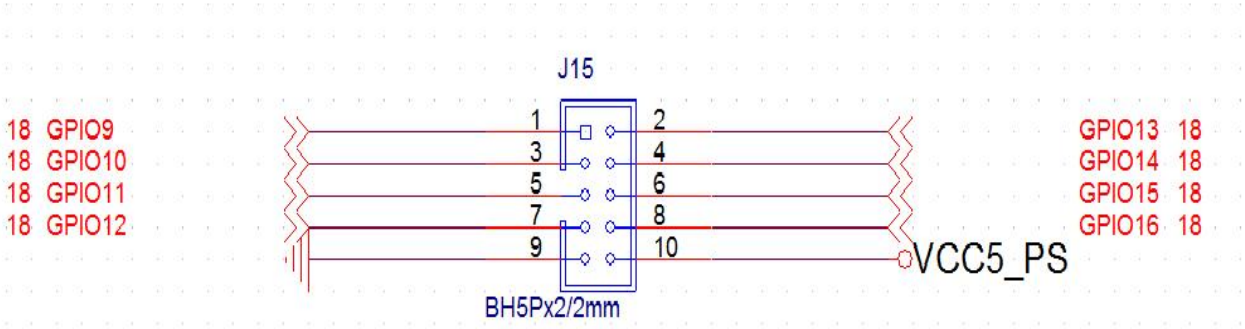
Definitions of Variables:
Value of Count-mode Register:
1) 0x00 -- Count down in seconds (Bit3=0)
2) 0x08 -- Count down in minutes (Bit3=1)
Value of Time-out Value Register:
1) 0x00 -- Time-out Disable
2) 0x01~0xFF -- Value for counting down

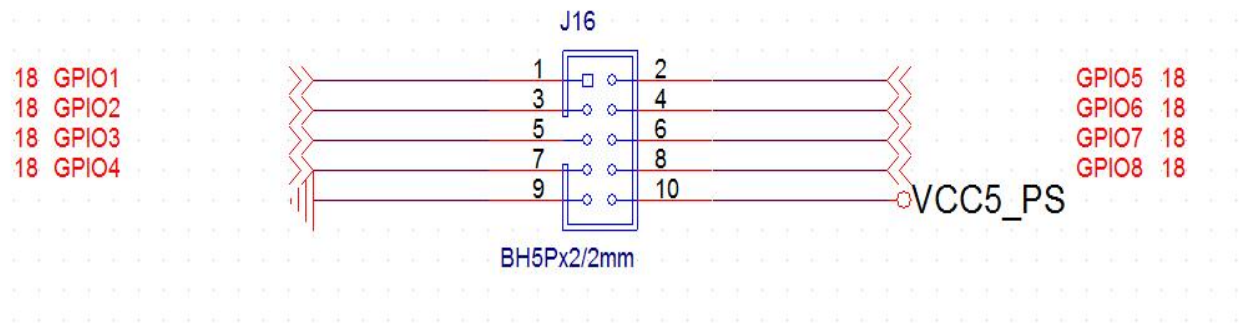
3.6 GPIO

The motherboard provides 16 input / output ports that can be individually configured to perform a simple basic I/O function.

GPIO Pin Assignment
The WADE-8075 provides 16 input/output ports that can be individually configured to perform a simple basic I/O function. Users can configure each individual port to become an input or output port by programming register bit of I/O Selection. To invert port value, the setting of Inversion Register has to be made. Port values can be set to read or write through Data Register.
The GPIO port is located on J15 & J16 shown as follows. Please note: **DO NOT SHORT-CIRCUIT PIN 9 AND 10 OF J15 & J16!**

The control for the GPIO signals is handled through a separate 2-byte I/O space.





J15 Ping Defines

PIN No.	Signal Description	PIN No.	Signal Description
1	GPIO9	2	GPIO13
3	GPIO10	4	GPIO14
5	GPIO11	6	GPIO15
7	GPIO12	8	GPIO16
9	Ground	10	+5V

J16 Ping Defines

PIN No.	Signal Description	PIN No.	Signal Description
1	GPIO1	2	GPIO5
3	GPIO2	4	GPIO6
5	GPIO3	6	GPIO7
7	GPIO4	8	GPIO8
9	Ground	10	+5V

GPIO Control Command Example (C Language)

```
#include <stdio.h>
#include <conio.h>
#include <dos.h>


#define Superio2_Addr    0x2E
// #define DEBUG                    1



void enter_Superio2_CFG(void)
{
        outportb(Superio2_Addr, 0x87);
        outportb(Superio2_Addr, 0x87);
}

void exit_Superio2_CFG(void)
{
        outportb(Superio2_Addr, 0xAA);
}



void Set_CFG2(unsigned char Addr2,unsigned char Value2)
{
        unsigned char d2;
```

```
        outportb(Superio2_Addr, Addr2);
        delay(2);
        outportb(Superio2_Addr +1, Value2);
#ifdef DEBUG
        d2 = inportb(Superio2_Addr+1);
        printf("\nWrite %x to CR%x, read back is:%x",Value2,Addr2,d2);
#endif /*DEBUG*/
        delay(2);
}



unsigned char Get_CFG2(unsigned char Addr2)
{
        unsigned char d2;
        outportb(Superio2_Addr, Addr2);
        delay(2);
        d2 = inportb(Superio2_Addr+1);
#ifdef DEBUG
        printf("\nGet data %x from CR%x",d2,Addr2);
#endif /*DEBUG*/
        delay(2);
        return(d2);
}

int main(void)
{

         unsigned char d2;
         unsigned char LD0830_S, LD08E0_S, LD08E1_S, LD08E2_S, LD08E3_S,
LD08E4_S, LD08E5_S, LD08E6_S, LD08E7_S;
         unsigned char LD0930_S, LD09E0_S, LD09E4_S, LD09E5_S, LD09E6_S,
LD09E7_S;
         unsigned char Test_Group_1, Test_Group_2;
         printf("\n--------------------------------------------------------------------");
         printf("\n-              PEB-2770/2780 GPIO TEST Program R1.0              -");
         printf("\n--------------------------------------------------------------------");
         printf("\n Please short the following pins with 2.00mm-pitched jumper on
J13");
         printf("\n P.S: SIO: W83627UHG, Winbond");
         printf("\n GP24(J16 PIN 1)----GP51(J16 PIN 2)");
         printf("\n GP23(J16 PIN 3)----GP52(J16 PIN 4)");
         printf("\n GP22(J16 PIN 5)----GP53(J16 PIN 6)");
         printf("\n GP50(J16 PIN 7)----GP54(J16 PIN 8)");
         printf("\n GND (J16 PIN10)****VCC (J16 PIN 9)");
```

```
            printf("\n");
            printf("\n GP55(J15 PIN 1)----GP61(J15 PIN 2)");
            printf("\n GP56(J15 PIN 3)----GP62(J15 PIN 4)");
            printf("\n GP57(J15 PIN 5)----GP63(J15 PIN 6)");
            printf("\n GP60(J15 PIN 7)----GP64(J15 PIN 8)");
            printf("\n GND (J15 PIN10)****VCC (J15 PIN 9)");
            printf("\n\n Starting...");

            enter_Superio2_CFG();                                   // 87 87
            /* CR2A B7 = 1 selet GPIO Port 1*/
            d2 = Get_CFG2(0x2A);
            d2 = (d2 & 0x7F) | 0x80;
            Set_CFG2(0x2A, d2);

            /* IO test loop 1 */
            /* Set GPIO Port 5 Enable */
           Set_CFG2(0x07, 0x08);                    /* Select logic device 08*/
           LD0830_S = Get_CFG2(0x30);          /* Backup the value */
           Set_CFG2(0x30, 0x06);                    /* Enable GPIO Port 5 and GPIO Port
6*/
           Set_CFG2(0x07, 0x09);        /* Select logic device 09*/
           LD0930_S = Get_CFG2(0x30);          /* Backup the value */
           Set_CFG2(0x30, 0x02);        /* Enable GPIO Port 2*/

//-------------------------------------------------------------------------------------------------
//   GPIO24->51
//   GPIO23->52
//   GPIO22->53
//   GPIO50->54
//
//   GPIO55->61
//   GPIO56->62
//   GPIO57->63
//   GPIO60->64
//-------------------------------------------------------------------------------------------------
           /* Set GPIO Port 2 */
           Set_CFG2(0x07, 0x09);
           LD09E4_S = Get_CFG2(0xE4);          /* Backup the value */
           Set_CFG2(0xE4, (LD09E4_S & 0xE3) );          /* Set the GPIO 22, 23, 24 to
output */

           /* Set GPIO Port 5 of Superio2 Enable */
           Set_CFG2(0x07, 0x08);                    /* Select logic device 08*/
           LD09E0_S = Get_CFG2(0xE0);          /* Backup the value */
```

```
        Set_CFG2(0xE0, 0x1E);               /* Set the GPIO 50, 55, 56, 57 to output.
GPIO 51, 52, 53, 54 to input */
        LD08E4_S = Get_CFG2(0xE4);          /* Backup the value */
        Set_CFG2(0xE4, (LD08E4_S & 0x1E) );         /* Set the GPIO 60 to output.
GPIO 61, 62, 63, 64 to input*/


        delay(2);

        Set_CFG2(0x07, 0x09);
        LD09E5_S = Get_CFG2(0xE5);          /* Backup the value */
        Set_CFG2(0xE5, (LD09E5_S | 0x14) );         /* Set the GPIO 22, 23, 24 to
High */

        Set_CFG2(0x07, 0x08);               /* Select logic device 08*/
        LD08E1_S = Get_CFG2(0xE1);          /* Backup the value */
        Set_CFG2(0xE1, ((LD08E1_S & 0x00) | 0xA0) );        /* Set th GPIO 50, 55,
56, 57 to High */
        LD08E5_S = Get_CFG2(0xE5);          /* Backup the value */
        Set_CFG2(0xE5, (LD08E5_S & 0xFE) );         /* Set the GPIO 60 to High*/

        delay(100);
        Set_CFG2(0x07, 0x08);       /* Select logic device 08*/
        Test_Group_1 = Get_CFG2(0xE1);    /* get GPIO Port 5 data */
        Test_Group_2 = Get_CFG2(0xE5);    /* get GPIO Port 6 data */
        printf("\n Test_Group_1 = %x", Test_Group_1);
        printf("\n Test_Group_2 = %x", Test_Group_2);

        //printf("\n%x",d2);
        if ( (Test_Group_1 & 0xAA) == 0xAA ){
                printf("\n GPIO[24,23,22,50]->[51,52,53,54] test ok!");
        }
        else{
                printf("\n GPIO[24,23,22,50]->[51,52,53,54] test fail!");
        }

        if ( (Test_Group_2 & 0x0A) == 0x0A) {
                printf("\n GPIO[55,56,57,60]->[61,62,63,64] test ok!");
        }
        else {
                printf("\n GPIO[55,56,57,60]->[61,62,63,64] test fail!");
        }
        Set_CFG2(0x07, 0x09);
        Set_CFG2(0xE0, LD09E0_S);
        Set_CFG2(0x30, LD0930_S);
```

```
            Set_CFG2(0x07, 0x08);
            Set_CFG2(0x30, LD0830_S);

   return(0);
}
```

Chapter 4
BIOS Setup Information

WADE-8075 uses AMI BIOS structure stored in Flash ROM. These BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it is retained during power-off periods. When system is turned on, WADE-8075 communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start up.

4.1 Entering Setup -- Launch System Setup

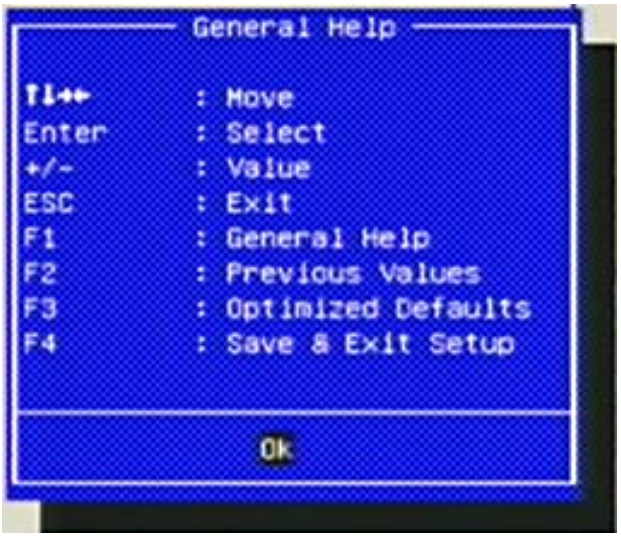
Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <Del> key will enter BIOS setup screen.

Press <Del> to enter SETUP

If the message disappears before responding and still wish to enter Setup, please restart the system by turning it OFF and On or pressing the RESET button. It can be also restarted by pressing <Ctrl>, <Alt>, and <Delete> keys on keyboard simultaneously.

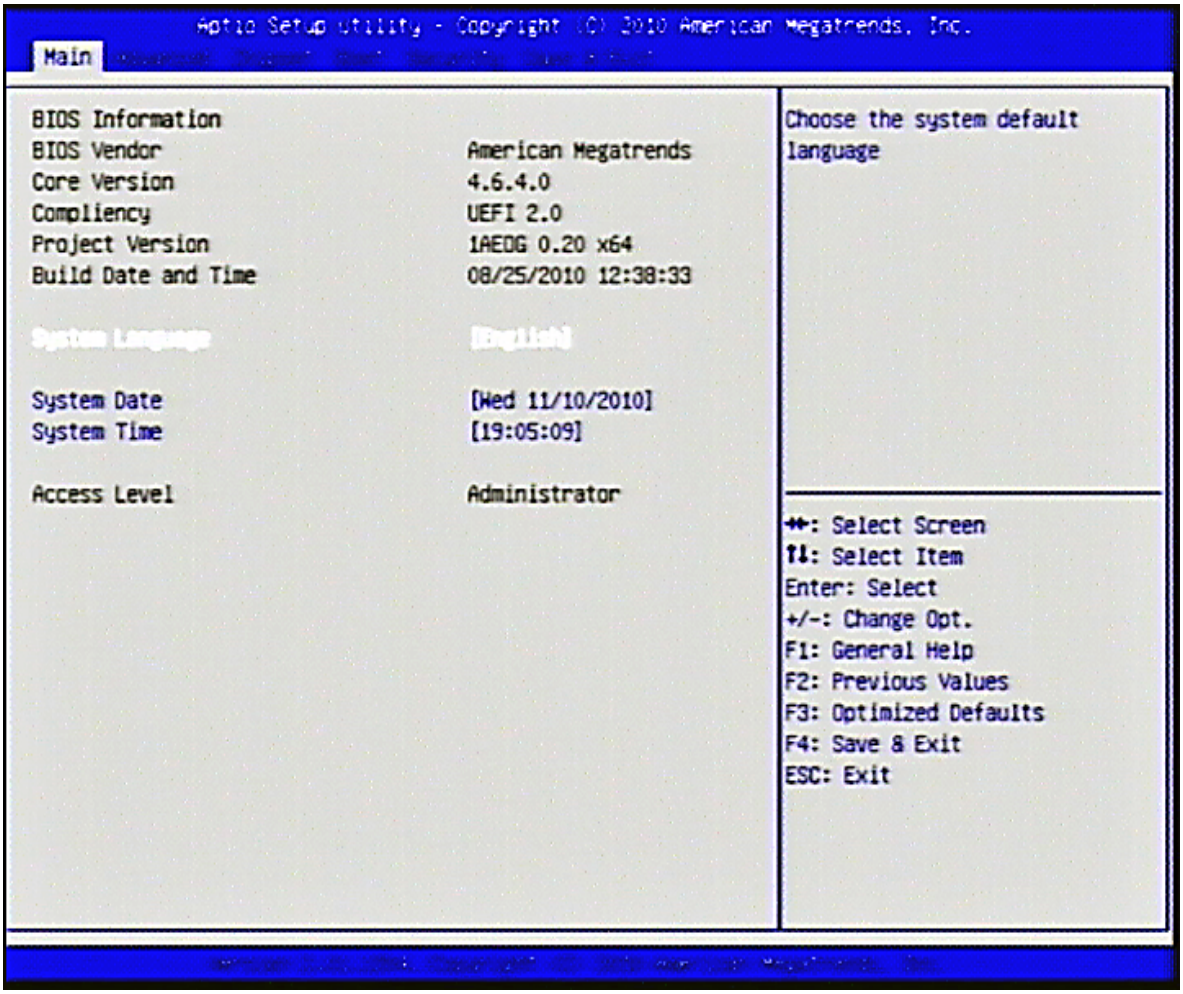
Press <F1> to Run SETUP or Resume

The BIOS setup program provides a General Help screen. The menu can be easily called up from any menu by pressing <F1>. The Help screen lists all the possible keys to use and the selections for the highlighted item. Press <Esc> to exit the Help screen.



4.2 Main

Use this menu for basic system configurations, such as time, date etc.



BIOS Information, Memory Information

These items show the firmware and memory specifications of your system. Read only.

System Time

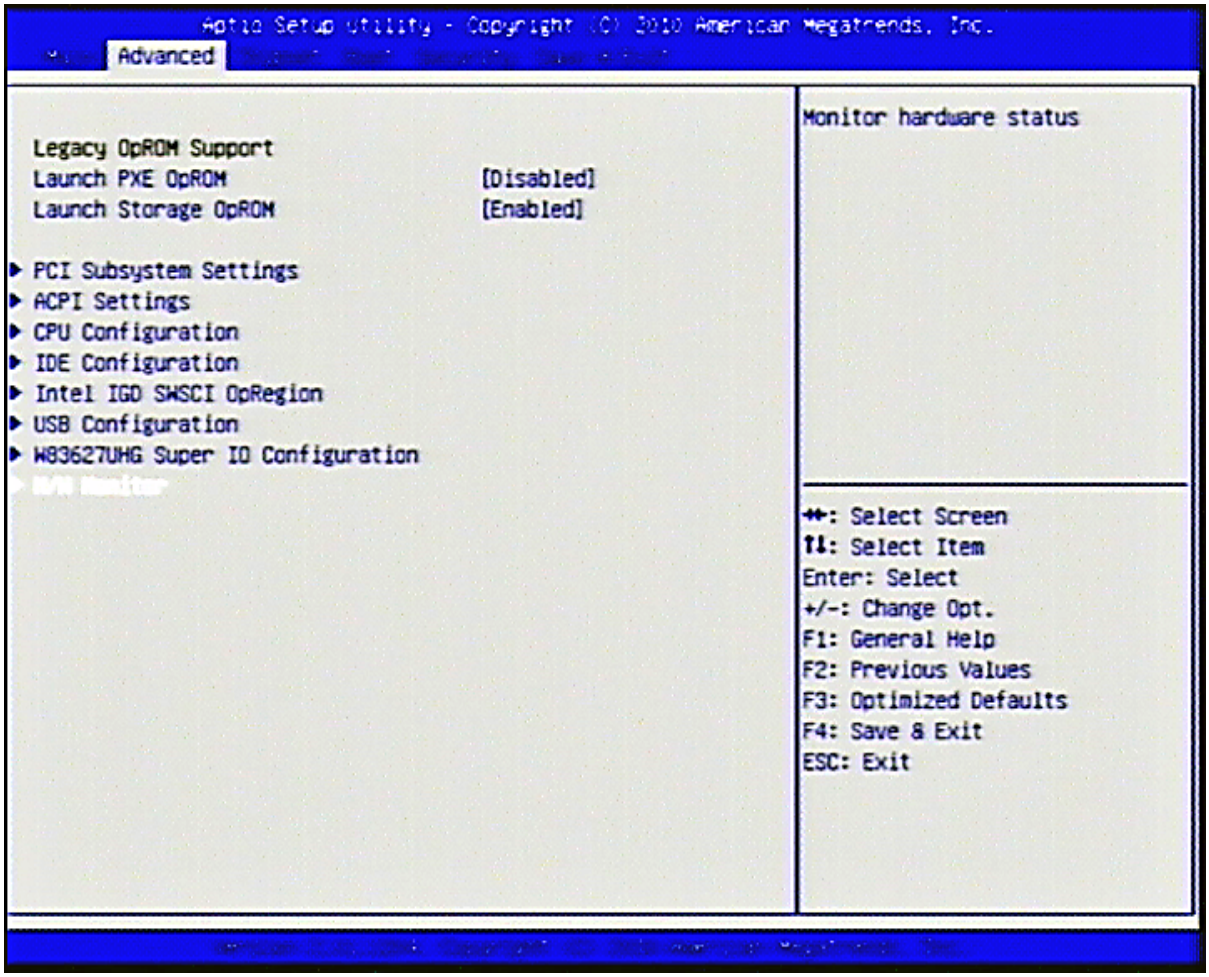
The time format is <Hour> <Minute> <Second>. Use [+] or [−] to configure system Time.

System Date

The date format is <Day>, <Month> <Date> <Year>. Use [+] or [−] to configure system Date.

4.3 Advanced

Use this menu to set up the items of special enhanced features.



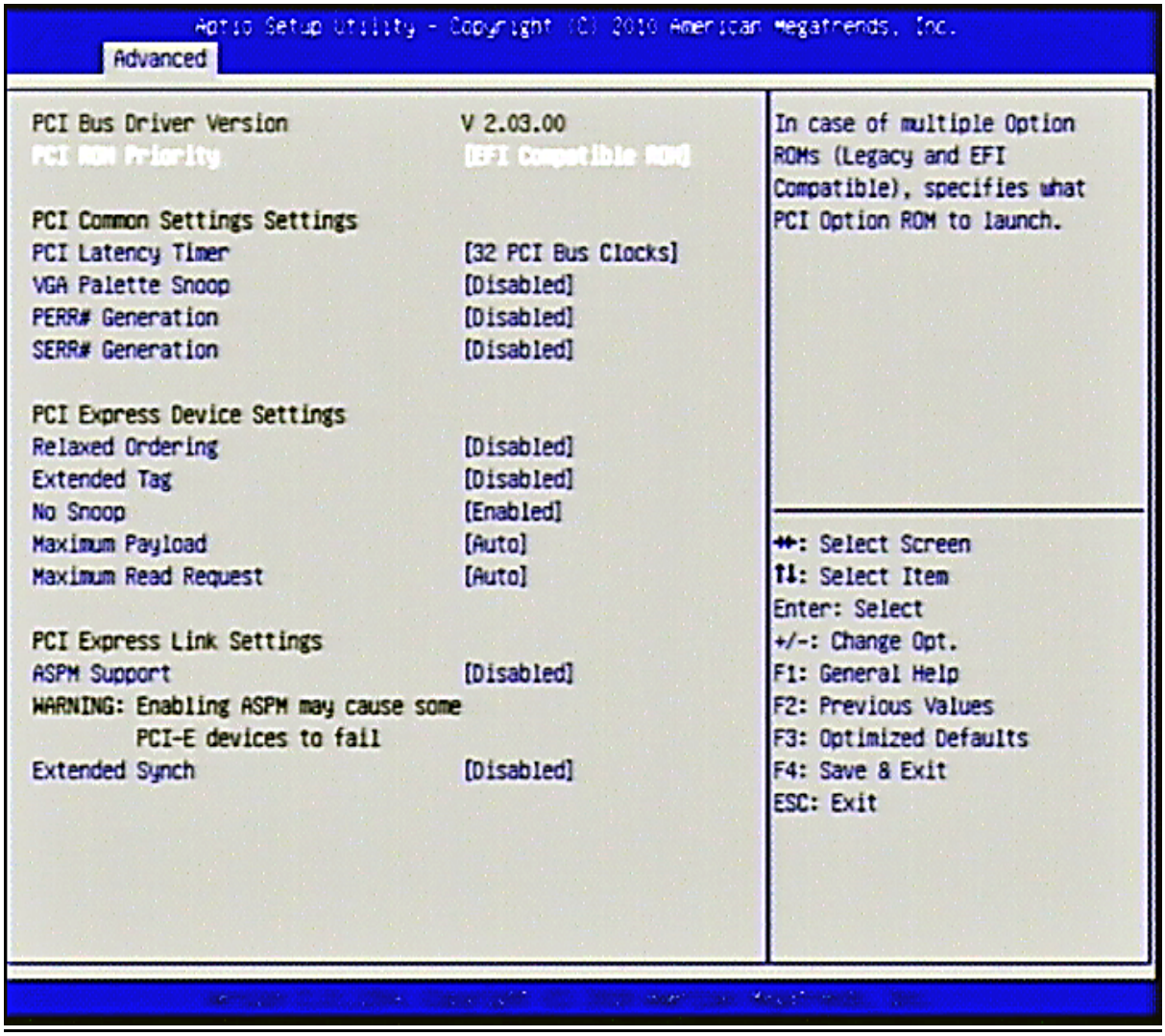
Launch PXE OpROM
Enable of Disable Boot Option for Legacy Network Devices.

Choices: Disabled, Enabled.

Launch Storage OpROM
Enable of Disable Boot Option for Legacy Mass Storage devices.

Choices: Disabled, Enabled.

PCI Subsystems Settings


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
PCI Bus Driver Version V 2.03.00
PCI ROM Priority [EFI Compatible ROM]
PCI Common Settings Settings
PCI Latency Timer [32 PCI Bus Clocks]
VGA Palette Snoop [Disabled]
PERR# Generation [Disabled]
SERR# Generation [Disabled]
PCI Express Device Settings
Relaxed Ordering [Disabled]
Extended Tag [Disabled]
No Snoop [Enabled]
Maximum Payload [Auto]
Maximum Read Request [Auto]
PCI Express Link Settings
ASPM Support [Disabled]
WARNING: Enabling ASPM may cause some
PCI-E devices to fail
Extended Synch [Disabled]
In case of multiple Option ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

PCI ROM Priority
Choices: Legacy ROM, EFI Compatible ROM.

PCI Latency Timer
Choices: 32 PCI, 64 PCI, 96 PCI, 128 PCI, 160 PCI, 192 PCI, 224 PCI, 248 PCI Bus Clocks.

VGA Palette Snoop
Choices: Disabled, Enabled.

PERR# Generation
Choices: Disabled, Enabled.

SERR# Generation
Choices: Disabled, Enabled.

Relaxed Ordering
Choices: Disabled, Enabled.

Extended Tag
Choices: Disabled, Enabled.

No Snoop
Choices: Disabled, Enabled.

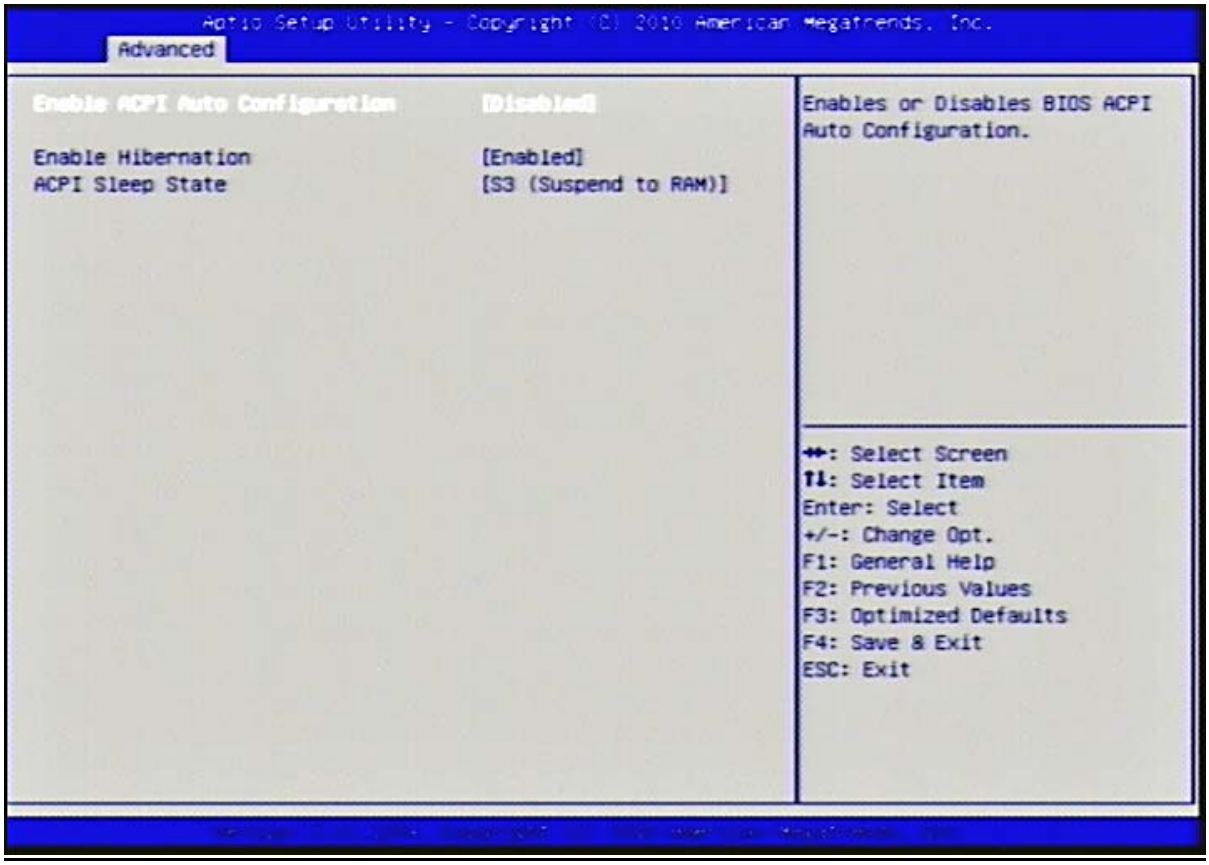
Maximum Payload
Choices: Auto, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes.

Maximum Read Request
Choices: Auto, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes.

ASPM Support
Choices: Disabled. Auto, Force L0.

Extended Synch
Choices: Disabled, Enabled.

ACPI Settings

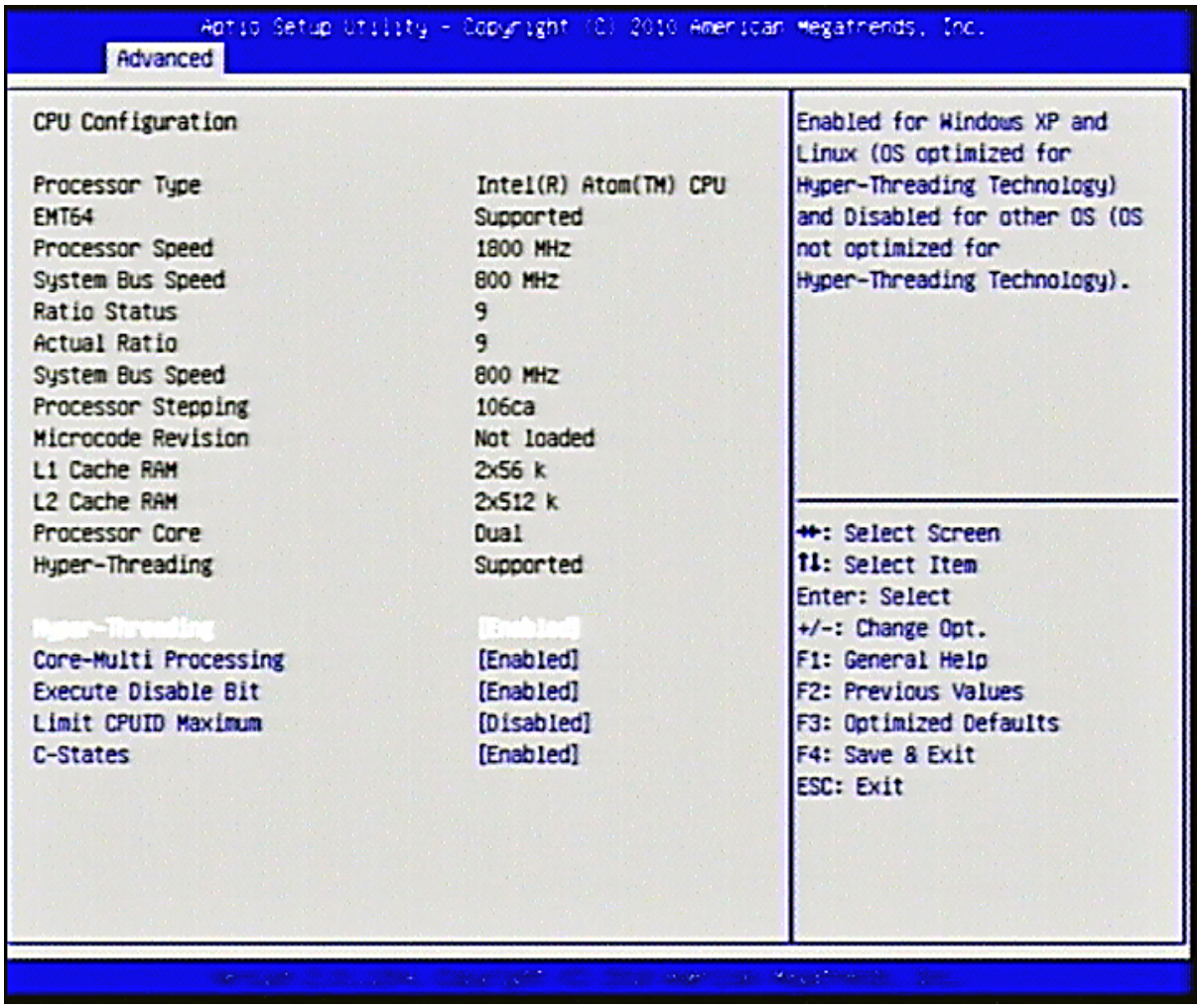


Enable ACPI Auto Configuration
Choices: Enabled, Disabled.

Enable Hibernation
Choices: Enabled, Disabled.

ACPI Sleep State
Choices: Suspend Disabled, S1 (CPU Stop Clock), S3 (Suspend to RAM).

CPU Configuration
These items show the advanced specifications of your CPU. Read only.



Hyper-Threading
Choices: Disabled, Enabled.

Core-Multi Processing
Choices: Disabled, Enabled.

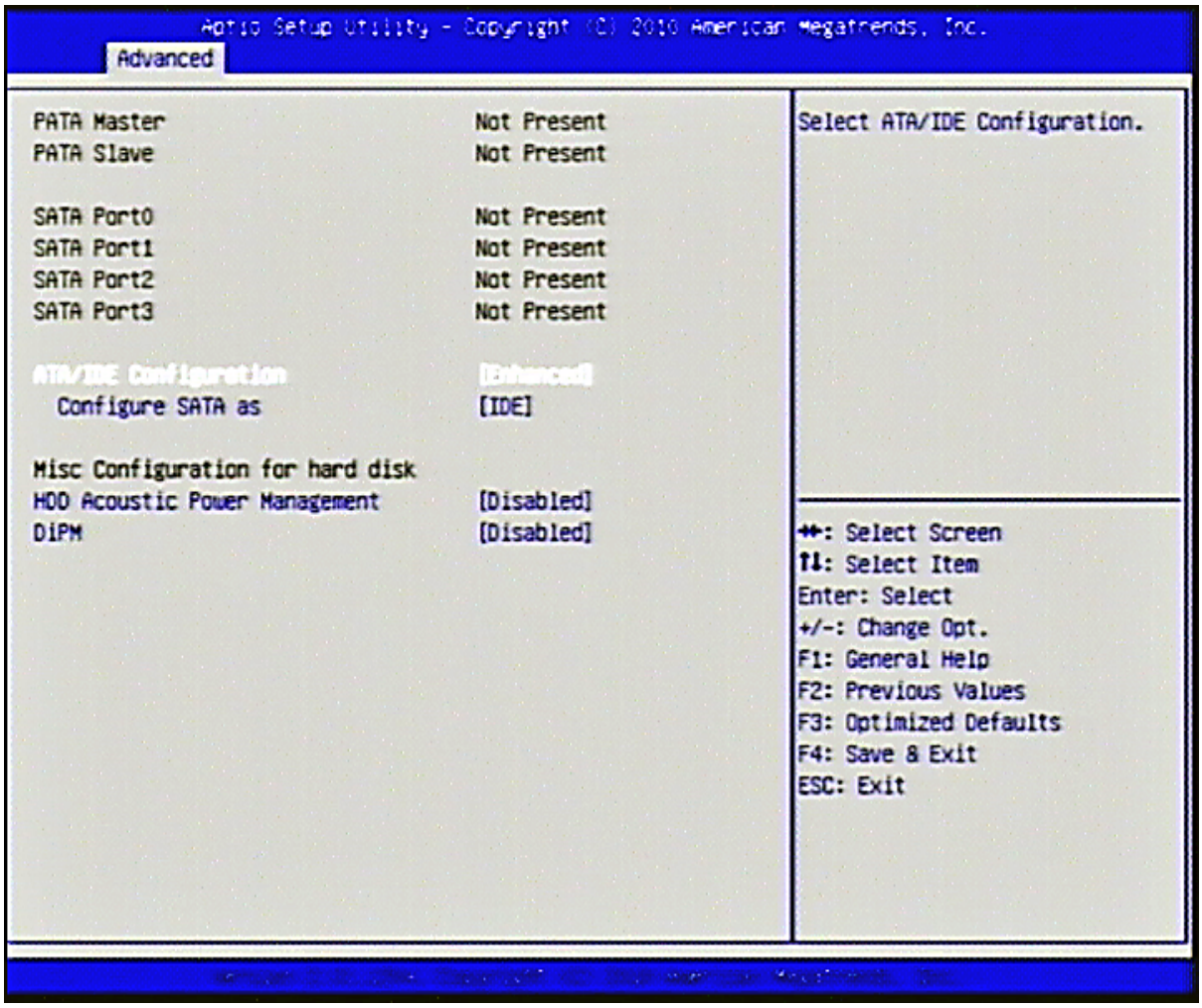
Execute Disable Bit
XP can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.).

Choices: Disabled, Enabled.

Limit CPUID Maximum
Disabled for Windows XP.
Choices: Disabled, Enabled.

C-States
Enable or Disable C2 and above
Choices: Disabled, Enabled.

IDE Configuration
The IDE Devices Configuration.



ATA/IDE configuration
Select ATA/IDE Configuration.
Choices: Disabled, Compatible, Enhanced.

Configure SATA as
Select a configuration for SATA Controller.

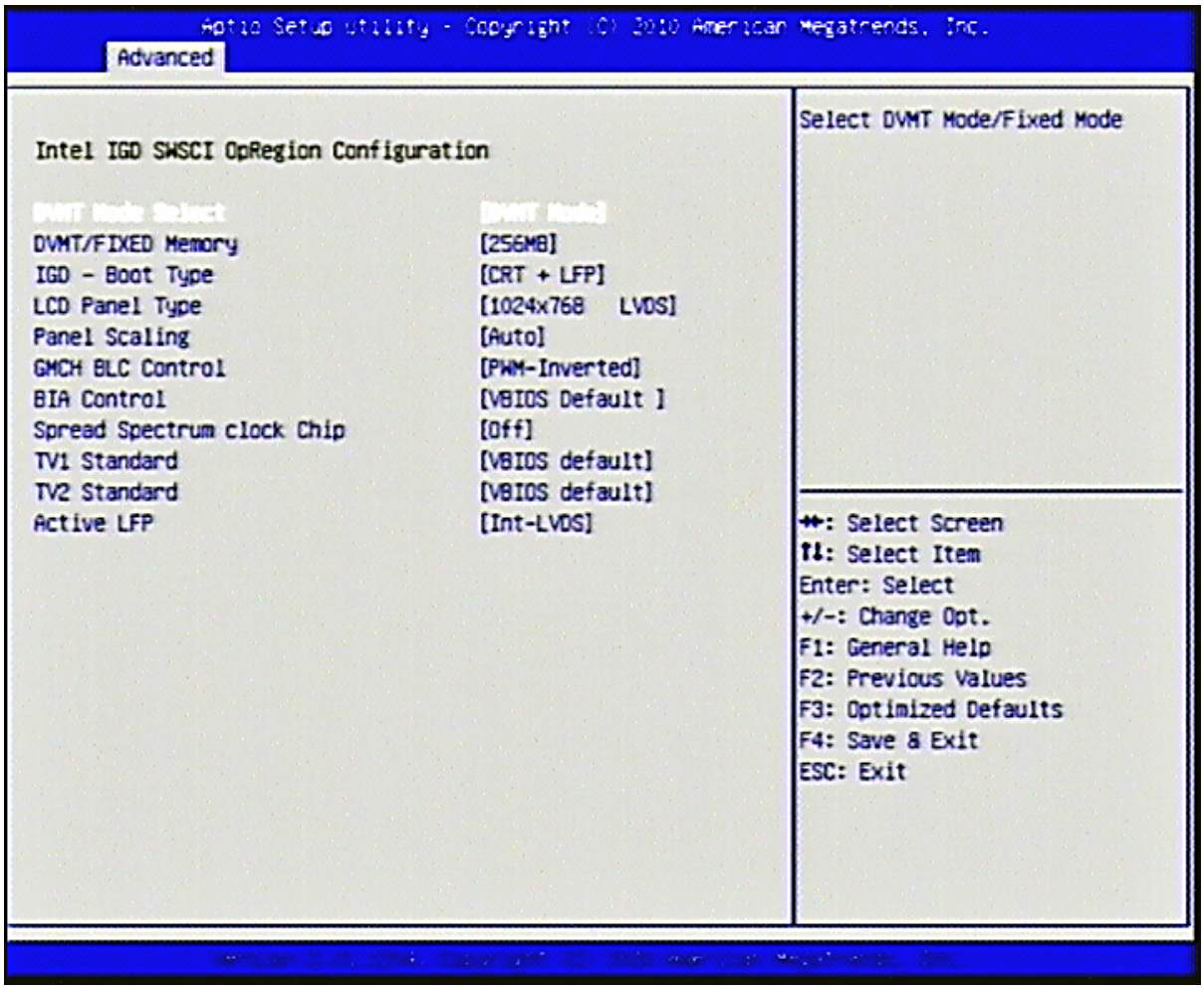
Choices: IDE, AHCI.

HDD Acoustic Power Management
Option to Enable or Disable HDD Acoustic Power Management.

Choices: Disabled, Enabled.

DiPM
Option to Enable or Disable DiPM.
Choices: Disabled, Enabled.

Intel IGD SWSCI OpRegion
These option contains all the Intel® IGD setting for graphic output.



DVMT Mode
Select DVMT Mode/Fixed Mode.

Choices: Fixed Mode, DVME Mode.

DVMT/FIXED Memory
Choices: 128M, 256MB, Maximum.

IGD – Boot Type
Select the Video Device which will be activated during POST.
Choices: VBIOS Default, CRT, LFP, CRT+LFP, TV, CRT+LFP-SDVO, EFP, TV-SDVO, CRT+LFP-SDVO, CRT+EFP, CRT+TV+LFP.

LCD Panel Type
Choices: 800x600 LVDS, 1024x768 LVDS, 1280x1024 LVDS, 1400x1050 LVDS1 ,1400x1050 LVDS2, 1600x1200 LVDS, 1280x768 LVDS, 1680x1050 LVDS, 1920x1200 LVDS, 1280x800 LVDS, 1280 x600 LVDS, 2048X1536 LVDS.

Panel Scaling
Choices: Auto, Force Scaling, Off, Maintain Aspect Ratio.

GMCH BLC Control
Choices: PWM-Inverted, GMBus-Inverted, PWM-Normal, GMBus Normal.

BIA Control
Choices: VBIOS Default, Disabled, Level 1, Level 2, Level 3, Level 4, Level 5

Spread Spectrum clock Chip
Hardware: Spread is controlled by Chip.
Software: Spread is controlled by BIOS.

Choices: Off, Hardware, Software.

TV1 Standard
Choices: VBIOS Default, NTSC_M, NTSC_M_J, NTSC_433, PAL_B, PAL_G, PAL_D, PAL_H, PAL_I, PAL_M, PAL_N, SECAM_L, SECAM_B, SECAM_D, SECAM_G,SECAM_H,SECAM_K, HDTV_STD_SMPTE_240M_1080i59,. HDTV_STD_SMPTE_240M_1080i60, HDTV_STD_SMPTE_295M_1080i50, HDTV_STD_SMPTE_295M_1080p50, HDTV_STD_SMPTE_296M_720p50, HDTV_STD_SMPTE_296M_720p60, HDTV_STD_CEAEIA_7702A_480p60, HDTV_STD_CEAEIA_7702A_480i60.

TV2 Standard

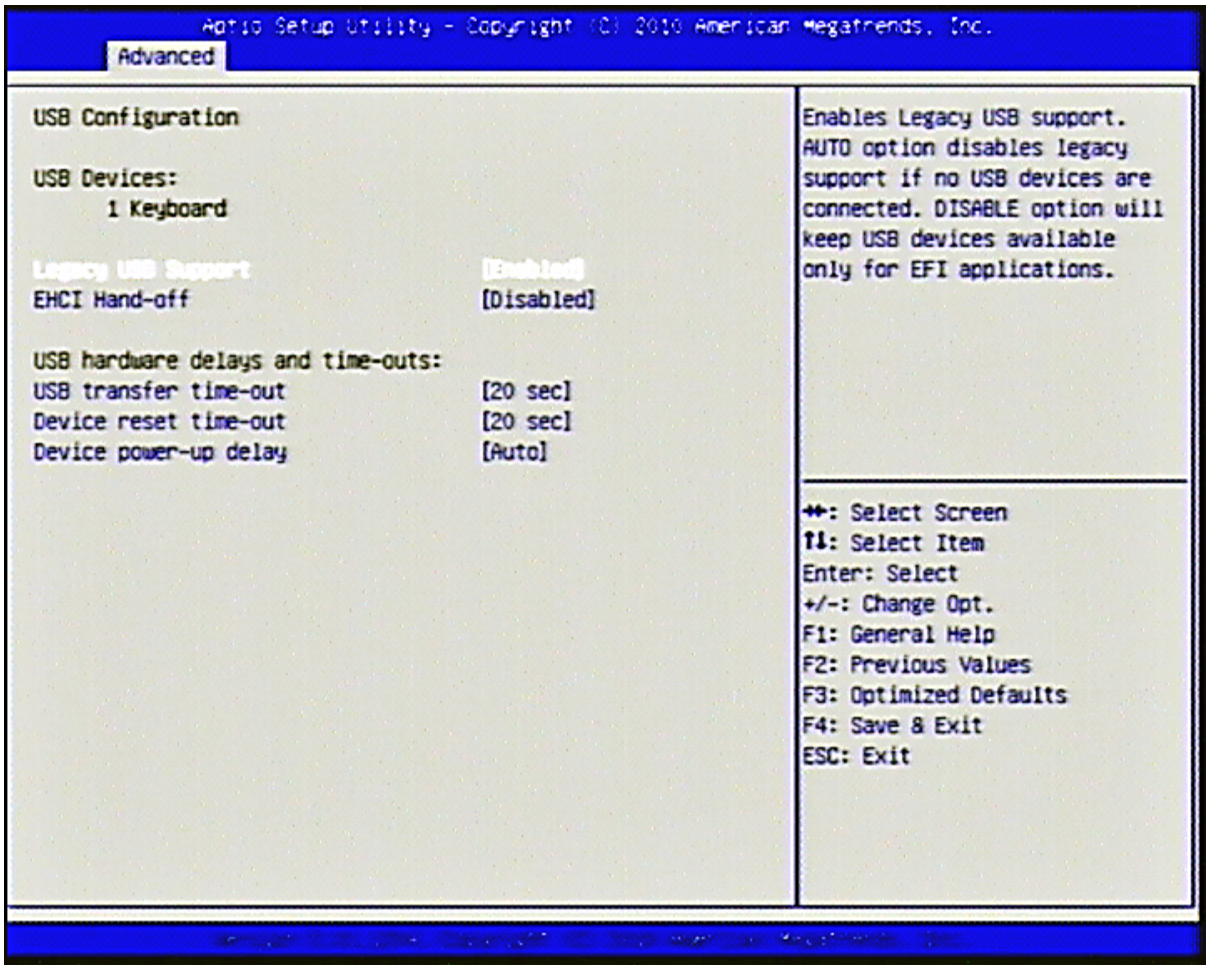
Choices: VBIOS Default, NTSC_M, NTSC_M_J, NTSC_433, PAL_B, PAL_G, PAL_D, PAL_H, PAL_I, PAL_M, PAL_N, SECAM_L, SECAM_B, SECAM_D, SECAM_G,SECAM_H,SECAM_K, HDTV_STD_SMPTE_240M_1080i59,. HDTV_STD_SMPTE_240M_1080i60, HDTV_STD_SMPTE_295M_1080i50, HDTV_STD_SMPTE_295M_1080p50, HDTV_STD_SMPTE_296M_720p50, HDTV_STD_SMPTE_296M_720p60, HDTV_STD_CEAEIA_7702A_480p60, HDTV_STD_CEAEIA_7702A_480i60.

Active LFP

Select the Active LFP Configuration.
No LVDS: VBIOS does not enable LVDS.
Int-LVDS: VBIOS enables LVDS driver by Integrated encoder.
SDVO LVDS: VBIOS enables LVDS driver by SDVO encoder.
eDP: LVDS Driven by Int-DisplayPort encoder.

Choices: No LVDS, Int-LVDS, SDVO LVDS, eDP.

USB Configuration


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
USB Configuration
USB Devices:
1 Keyboard
Legacy USB Support [Enabled]
EHCI Hand-off [Disabled]
USB hardware delays and time-outs:
USB transfer time-out [20 sec]
Device reset time-out [20 sec]
Device power-up delay [Auto]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Legacy USB Support

Set to [Enabled] if you need to use any USB 1.1/2.0 device in the operating system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix.

Choices: Disabled, Enabled, Auto.

EHCI Hand-Off
This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.

Choices: Disabled, Enabled.

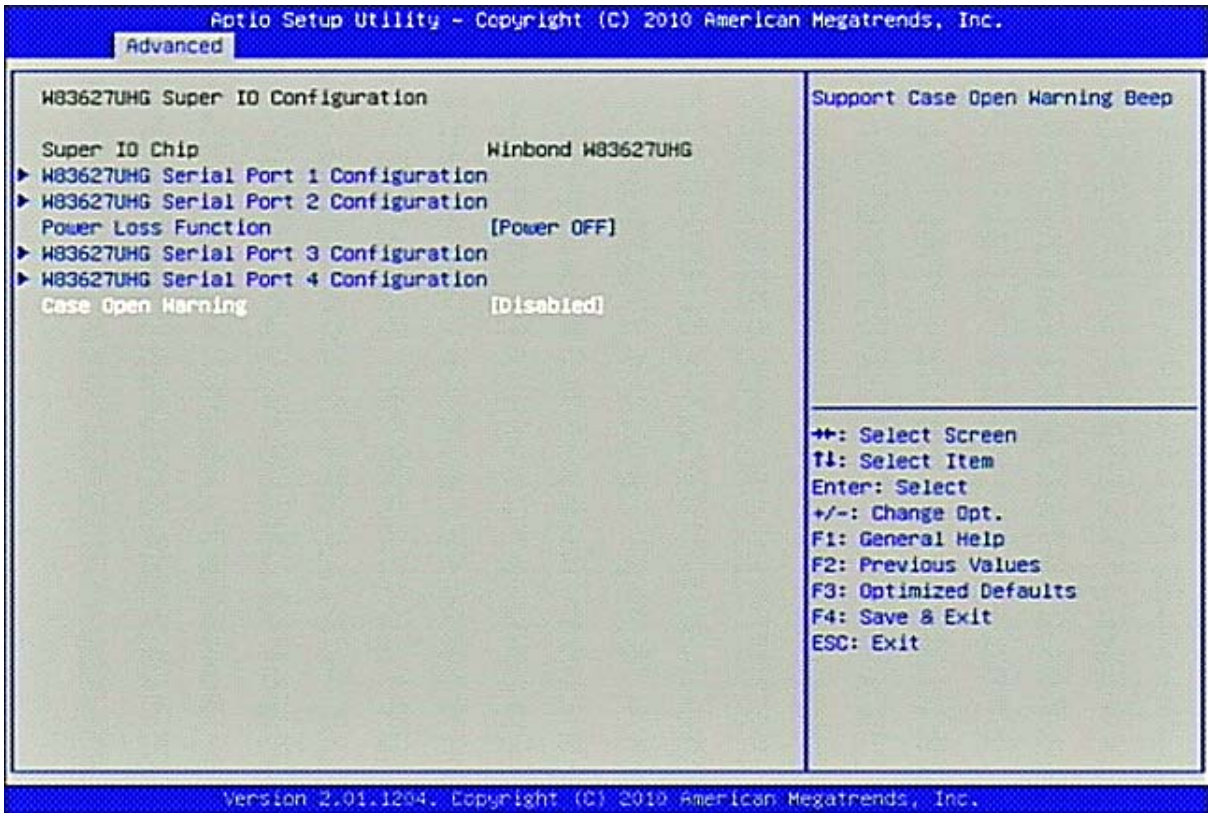
USB transfer time-out
The Time-out value for Control, Bulk, and Interrupt transfers.

Choices: 1 sec, 5 sec, 10 sec, 20 sec.

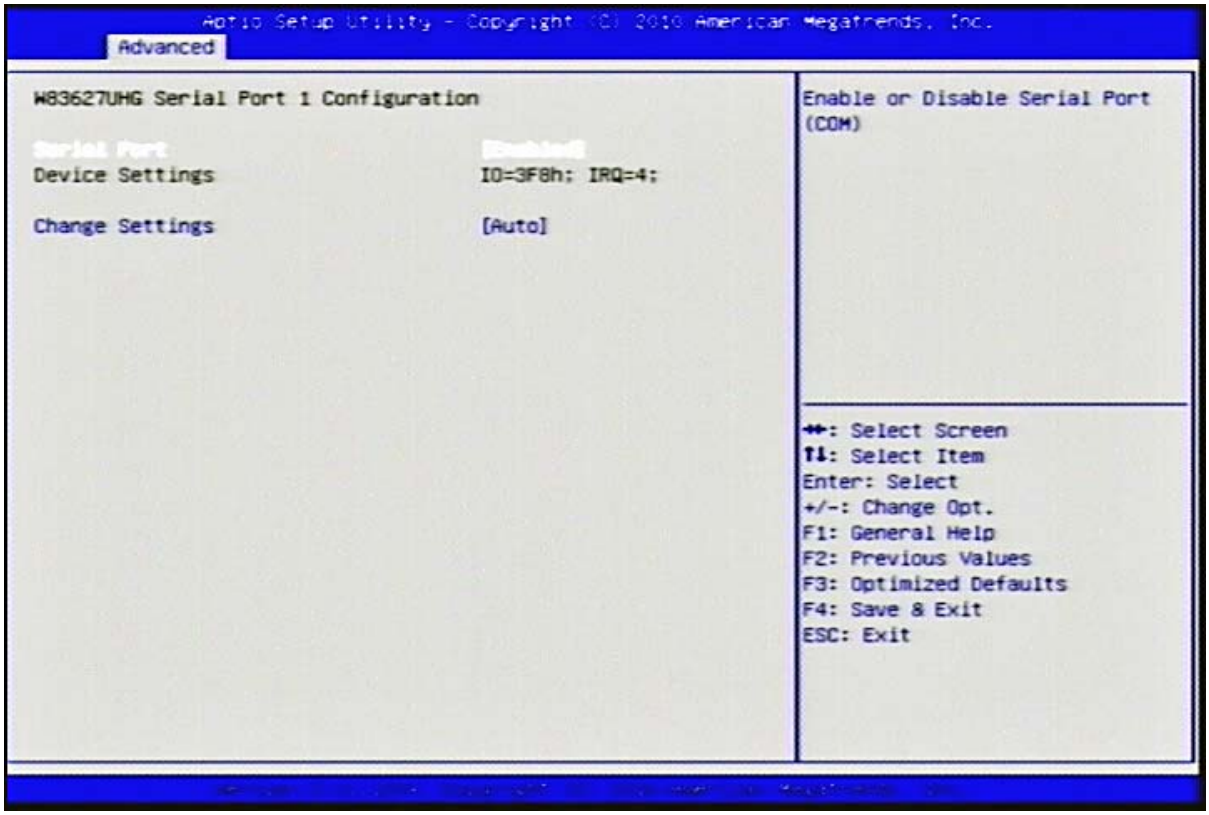
Device Reset time-out
Choices: 10 sec, 20 sec, 30 sec, 40 sec.

Device Power-up delay
Choices: Auto, Manual.

W83627UHG Super IO Configuration


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
W83627UHG Super IO Configuration
Super IO Chip Winbond W83627UHG
W83627UHG Serial Port 1 Configuration
W83627UHG Serial Port 2 Configuration
Power Loss Function [Power OFF]
W83627UHG Serial Port 3 Configuration
W83627UHG Serial Port 4 Configuration
Case Open Warning [Disabled]
Support Case Open Warning Beep
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.01.1204. Copyright (C) 2010 American Megatrends, Inc.

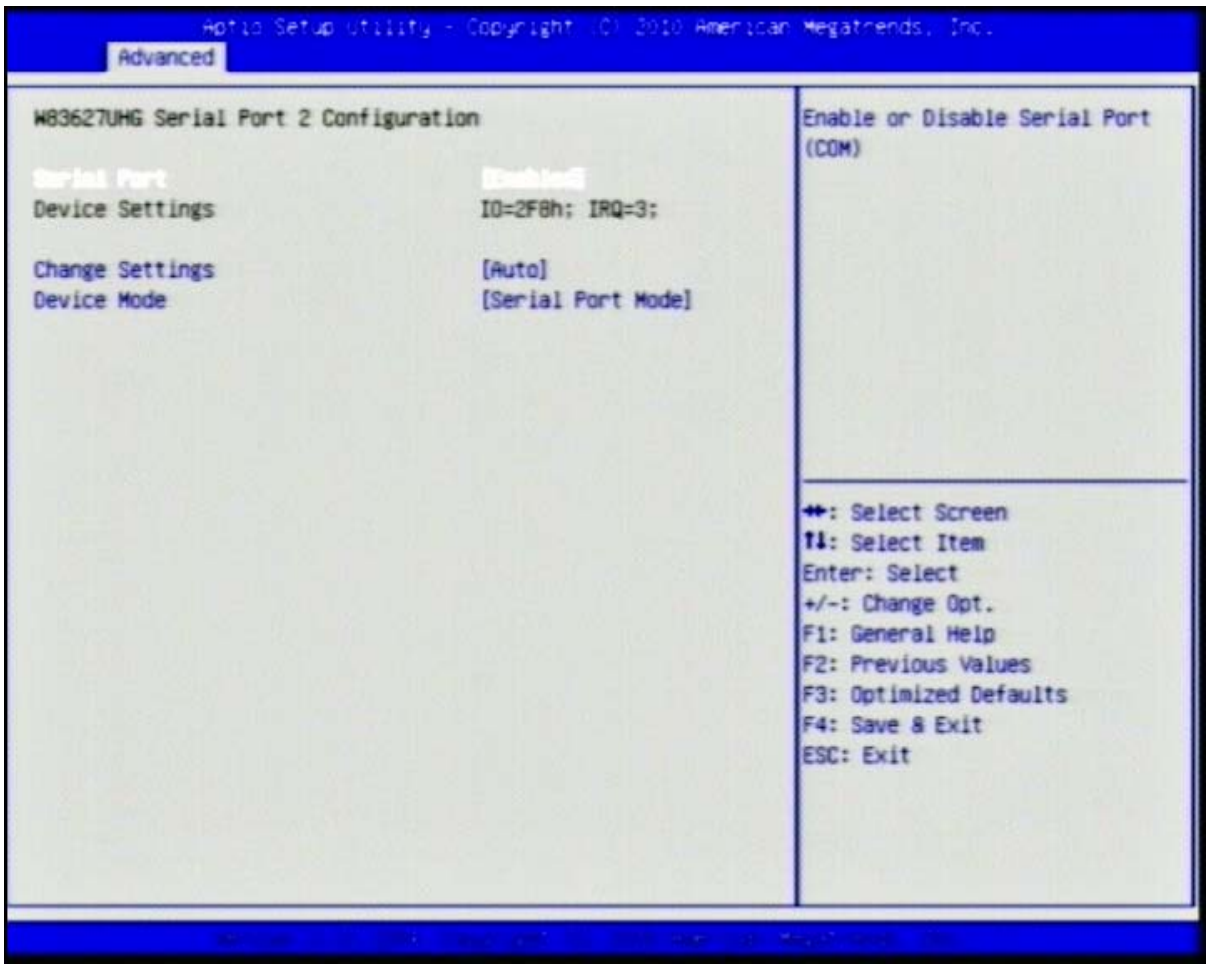
W83627UHG Serial Port 1 Configuration


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
W83627UHG Serial Port 1 Configuration
Device Settings
IO=3F8h; IRQ=4;
Change Settings
[Auto]
Enable or Disable Serial Port (COM)
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Serial Port
Choices: Disabled, Enabled.

Change Settings
Choices: Auto. IO=3F8h; IRQ=4, IO=3F8h; IRQ=3,4,5,6,7,10,11,12, IO=2F8h; IRQ=3,4,5,6,7,10,11,12, IO=3E8h; IRQ=3,4,5,6,7,10,11,12, IO=2E8h; IRQ=3,4,5,6,7,10,11,12.

W83627UHG Serial Port 2 Configuration



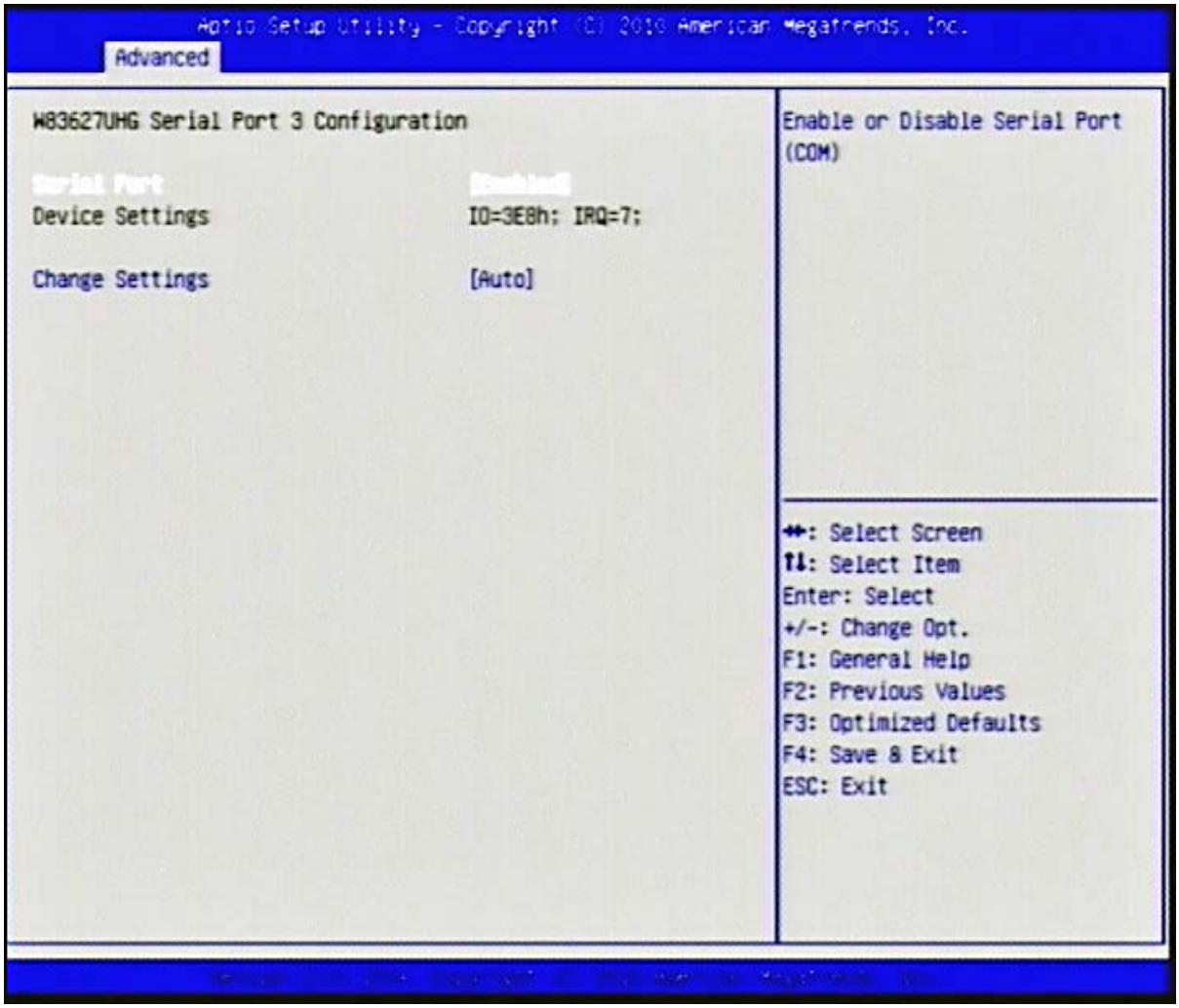
Serial Port
Choices: Disabled, Enabled.

Change Settings
Choices: Auto. IO=2F8h; IRQ=3, IO=3F8h; IRQ=3,4,5,6,7,10,11,12, IO=2F8h; IRQ=3,4,5,6,7,10,11,12, IO=3E8h; IRQ=3,4,5,6,7,10,11,12, IO=2E8h; IRQ=3,4,5,6,7,10,11,12.

Device Mode
Choices: Standard Serial Port Mode, IrDA Mode, ASK-IR Mode.

Power Loss Function
Choices: Power off, Power On, Power Last State.

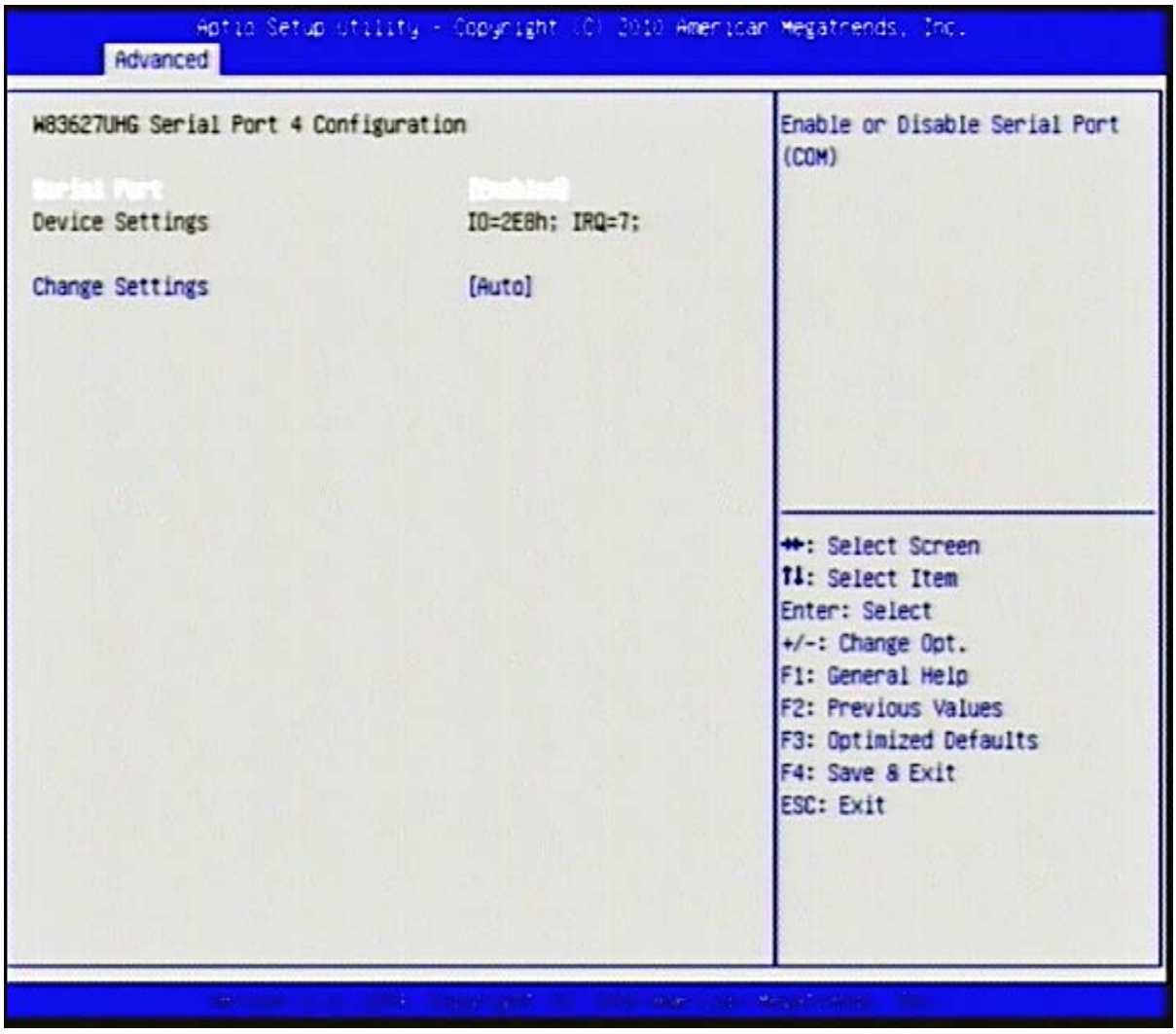
W83627UHG Serial Port 3 Configuration



Serial Port
Choices: Disabled, Enabled.

Change Settings
Choices: Auto. IO=3E8h; IRQ=7, IO=3F8h; IRQ=7,10,11,12, IO=2F8h; IRQ=7,10,11,12, IO=3E8h; IRQ=7,10,11,12, IO=2E8h; IRQ=7,10,11,12;IO=2E0h; IRQ=7,10,11,12; IO=2F0h; IRQ=7,10,11,12.

W83627UHG Serial Port 4 Configuration



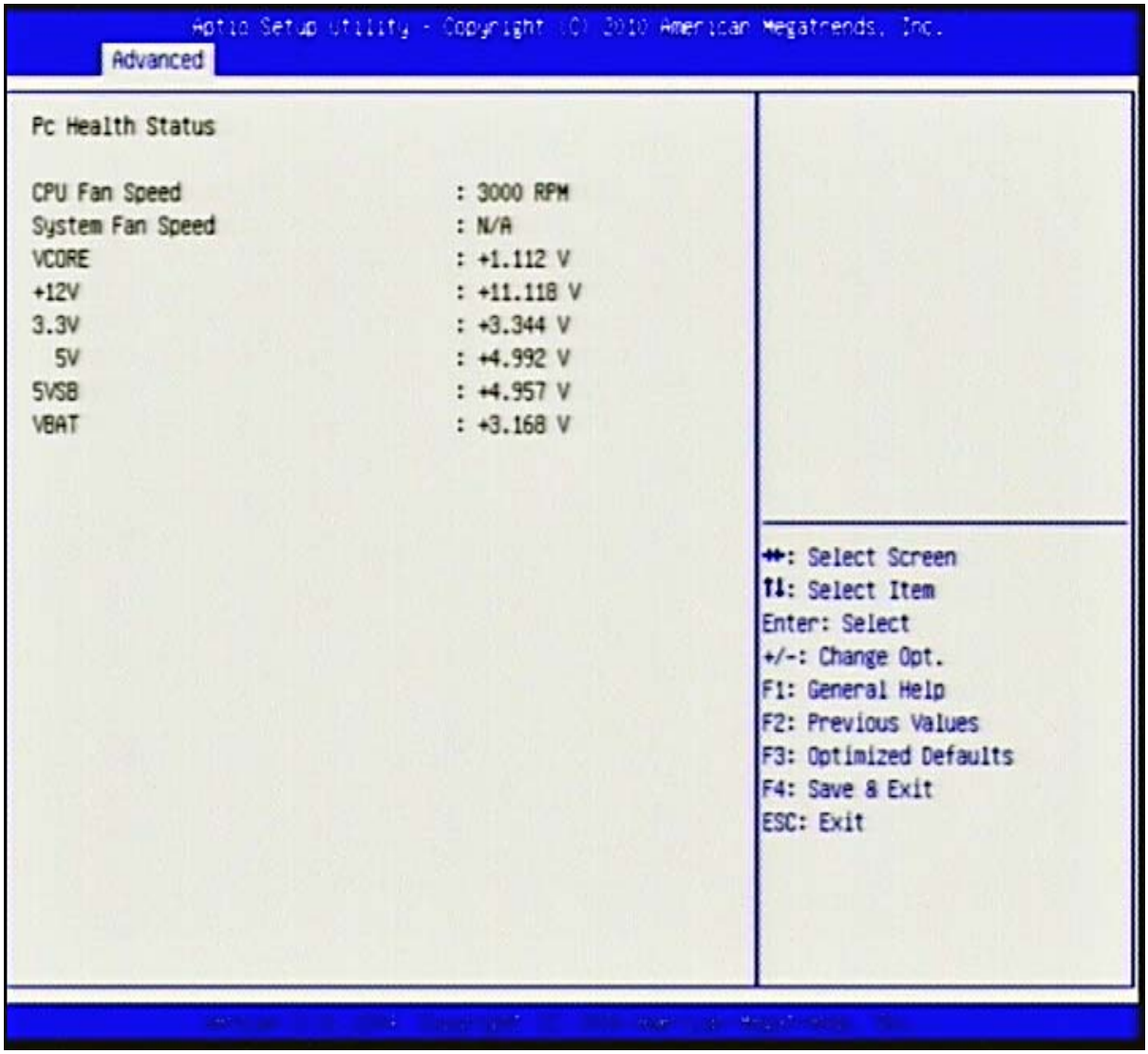
Serial Port
Choices: Disabled, Enabled.

Change Settings
Choices: Auto. IO=2E8h; IRQ=7, IO=3F8h; IRQ=7,10,11,12, IO=2F8h; IRQ=7,10,11,12, IO=3E8h; IRQ=7,10,11,12, IO=2E8h; IRQ=7,10,11,12;IO=2E0h; IRQ=7,10,11,12; IO=2F0h; IRQ=7,10,11,12.

Case Open Warming
Support Case Open Warming Beep

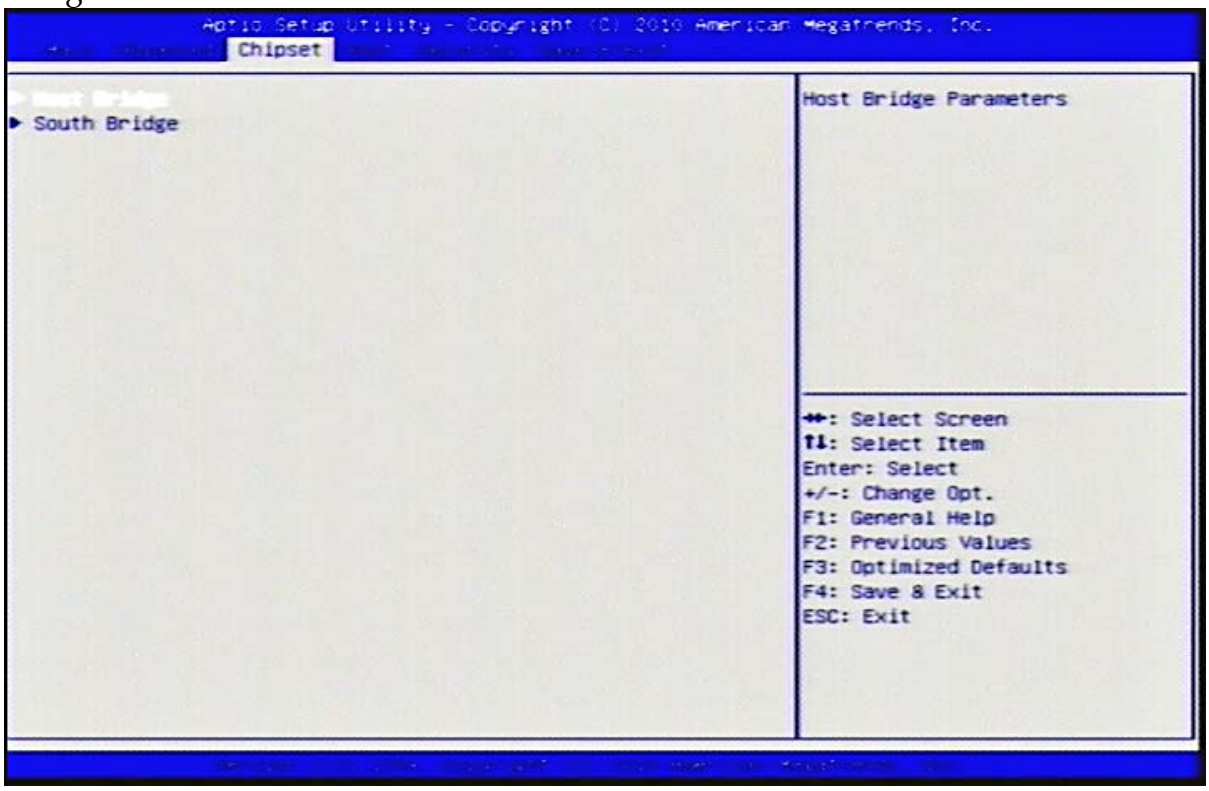
Choices: Disabled, Enabled.

H/W Monitor

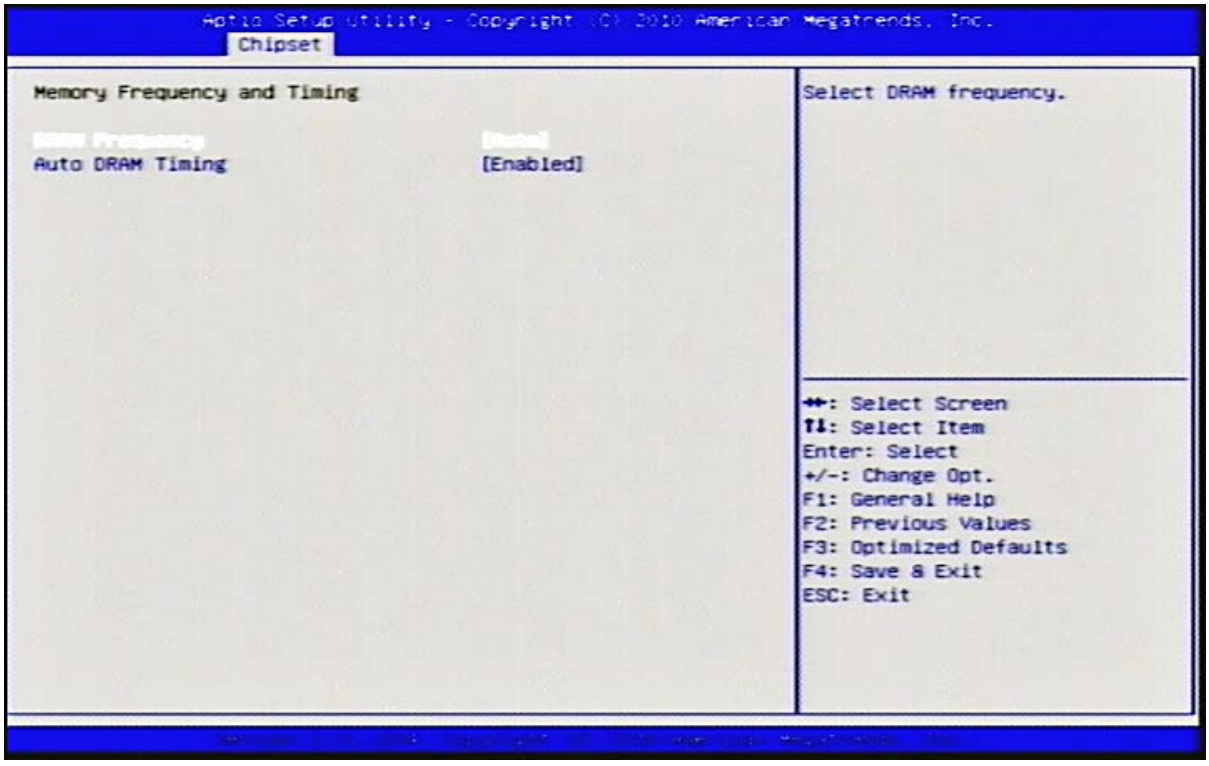

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
Pc Health Status
CPU Fan Speed : 3000 RPM
System Fan Speed : N/A
VCORE : +1.112 V
+12V : +11.118 V
3.3V : +3.344 V
5V : +4.992 V
5VSB : +4.957 V
VBAT : +3.168 V
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

4.4 Chipset

This menu controls the advanced features of the onboard Host Bridge and South Bridge.



Memory Frequency and Timing



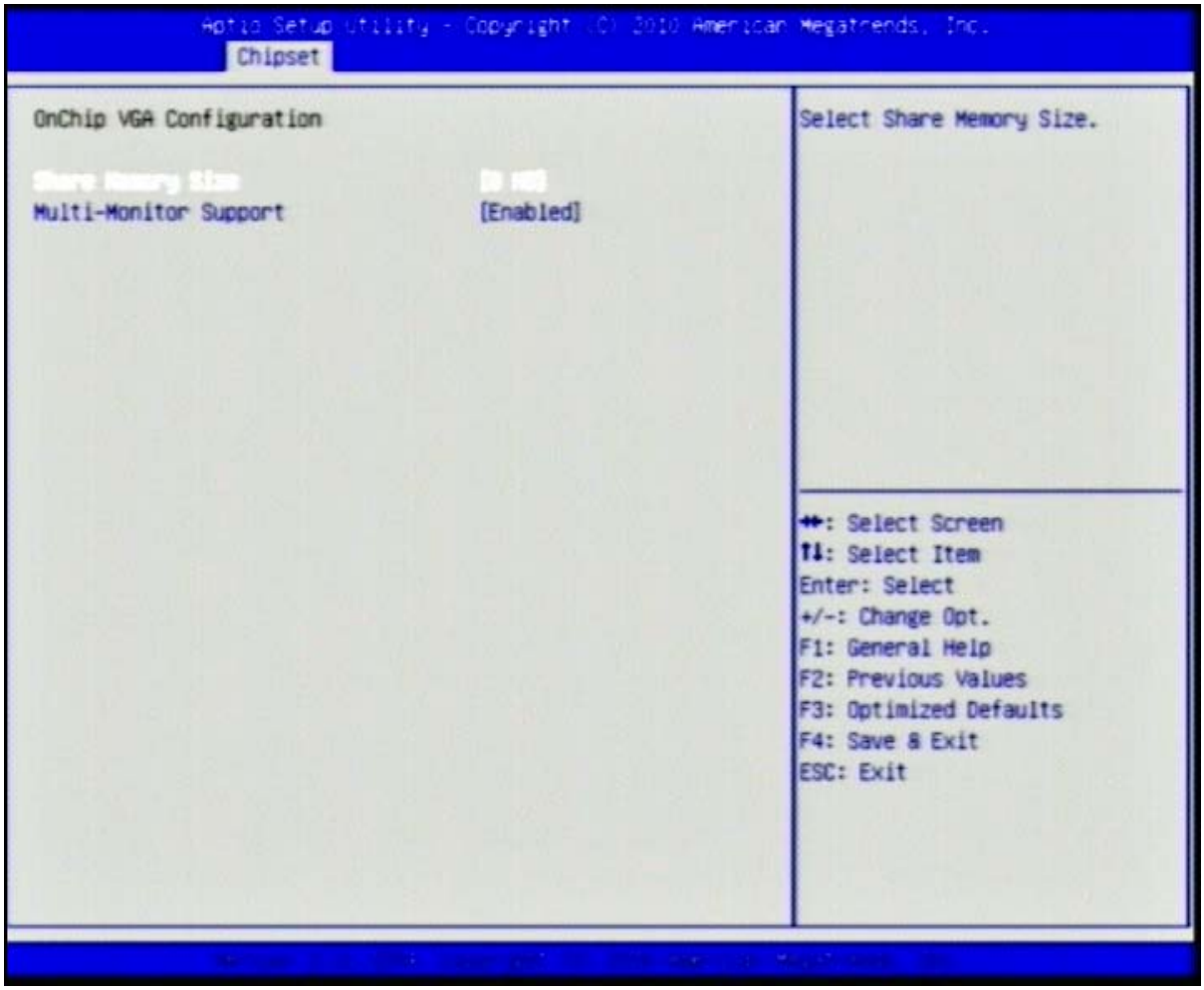
DRAM Frequency
Select DRAM frequency.

Choices: Auto, 667 Mhz, 800 Mhz.

Auto DRAM Timing
Enable/Disable to configure DRAM Timing by SPD.

Choices: Disabled, Enabled.

OnChip VGA Configuration



Share Memory Size
Select Share Memory Size.

Choices: Disabled, 1 MB, 8MB.

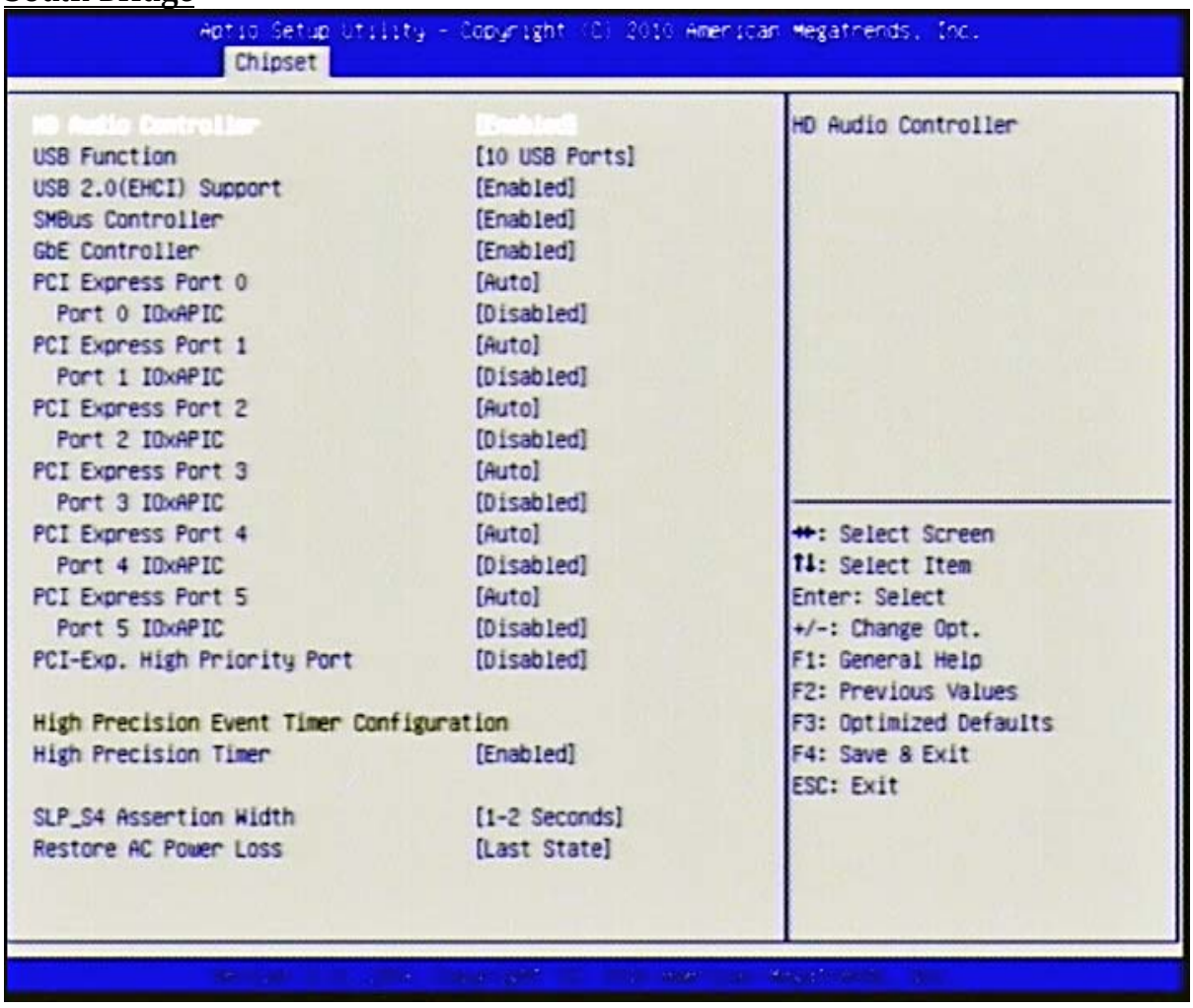
Multi-Monitor Support
Enable the Multi-Monitor Mode.

Choices: Disabled, Enabled.

Initate Graphic Adapter
Select which graphics controller to use as the primary boot device.

Choices: IGD, PCI/IGD, PCI/PEG, PEG/IGD, PEG/PCI.

South Bridge


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Chipset
USB Function [10 USB Ports]
USB 2.0(EHCI) Support [Enabled]
SMBus Controller [Enabled]
GbE Controller [Enabled]
PCI Express Port 0 [Auto]
Port 0 IOxAPIC [Disabled]
PCI Express Port 1 [Auto]
Port 1 IOxAPIC [Disabled]
PCI Express Port 2 [Auto]
Port 2 IOxAPIC [Disabled]
PCI Express Port 3 [Auto]
Port 3 IOxAPIC [Disabled]
PCI Express Port 4 [Auto]
Port 4 IOxAPIC [Disabled]
PCI Express Port 5 [Auto]
Port 5 IOxAPIC [Disabled]
PCI-Exp. High Priority Port [Disabled]
High Precision Event Timer Configuration
High Precision Timer [Enabled]
SLP_S4 Assertion Width [1-2 Seconds]
Restore AC Power Loss [Last State]
HD Audio Controller
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

HD Audio Controller
Choices: Disabled, Enabled.

USB Function
Choices: Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports, 8 USB Ports, 10 USB Ports.

USB 2.0(EHCI) Support
Choices: Disabled, Enabled.

SMBus Controller
Choices: Disabled, Enabled.

GbE Controller
Choices: Disabled, Enabled.

PCI Express Port 0
Choices: Auto, Enabled, Disabled.

Port 0 IOxAPIC
Choices: Auto, Enabled, Disabled.

PCI Express Port 1
Choices: Auto, Enabled, Disabled.

Port 1 IOxAPIC
Choices: Auto, Enabled, Disabled.

PCI Express Port 2
Choices: Auto, Enabled, Disabled.

Port 2 IOxAPIC
Choices: Auto, Enabled, Disabled.

PCI Express Port 3
Choices: Auto, Enabled, Disabled.

Port 3 IOxAPIC
Choices: Auto, Enabled, Disabled.

PCI Express Port 4
Choices: Auto, Enabled, Disabled.

Port 4 IOxAPIC
Choices: Auto, Enabled, Disabled.

PCI Express Port 5
Choices: Auto, Enabled, Disabled.

Port 5 IOxAPIC
Choices: Auto, Enabled, Disabled.

PCI-Exp. High Priority Port
Select a PCI Express High Priority Port.

Choices: Disabled, Port0, Port1, Port2, Port3, Port4,Port5.

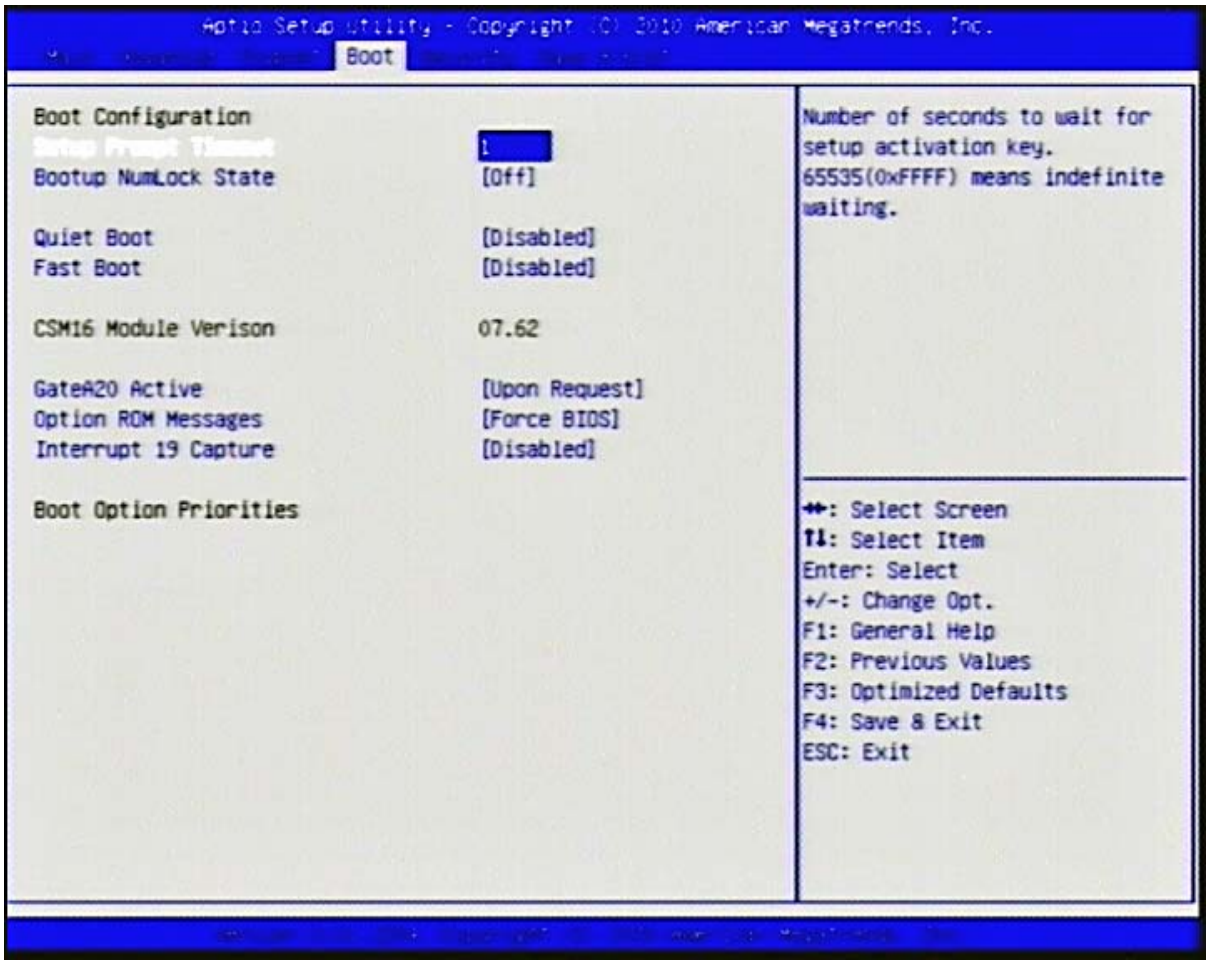
High Precision Timer
Enable or Disable the High Precision Event Timer.

Choices: Disabled, Enabled.

SLP_S4 Assertion Width
Choices: 1-2, 2-3. 3-4, 4-5 seconds.

4.5 Boot

Use this menu to specify the priority of boot devices.



Setup Prompt Timeout
Number of seconds to wait for setup activation key. 65535(0Xffff) means indefinite waiting.

Choices: 1-65535.

Bootup Num-Lock State

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

Choices: On, Off.

Quiet Boot

This BIOS feature determines if the BIOS should hide the normal POST messages with the motherboard or system manufacturer's full-screen logo. When it is enabled, the BIOS will display the full-screen logo during the boot-up sequence, hiding normal POST messages.

When it is disabled, the BIOS will display the normal POST messages, instead of the full-screen logo.

Please note that enabling this BIOS feature often adds 2-3 seconds of delay to the booting sequence. This delay ensures that the logo is displayed for a sufficient amount of time. Therefore, it is recommended that you disable this BIOS feature for a faster boot-up time.

Choices: Disabled, Enabled.

Fast Boot

Enabling this setting will cause the BIOS power-on self test routine to skip some of its tests during boot up for faster system boot.

Choices: Disabled, Enabled.

GateA20 Active
Choices: Upon Request, Always.

Option ROM Messages
This item is used to determine the display mode when an optional ROM is initialized during POST. When set to [Force BIOS], the display mode used by AMI BIOS is used. Select [Keep Current] if you want to use the display mode of optional ROM.

Choices: Force BIOS, Keep Current.

Interrupt 19 Capture

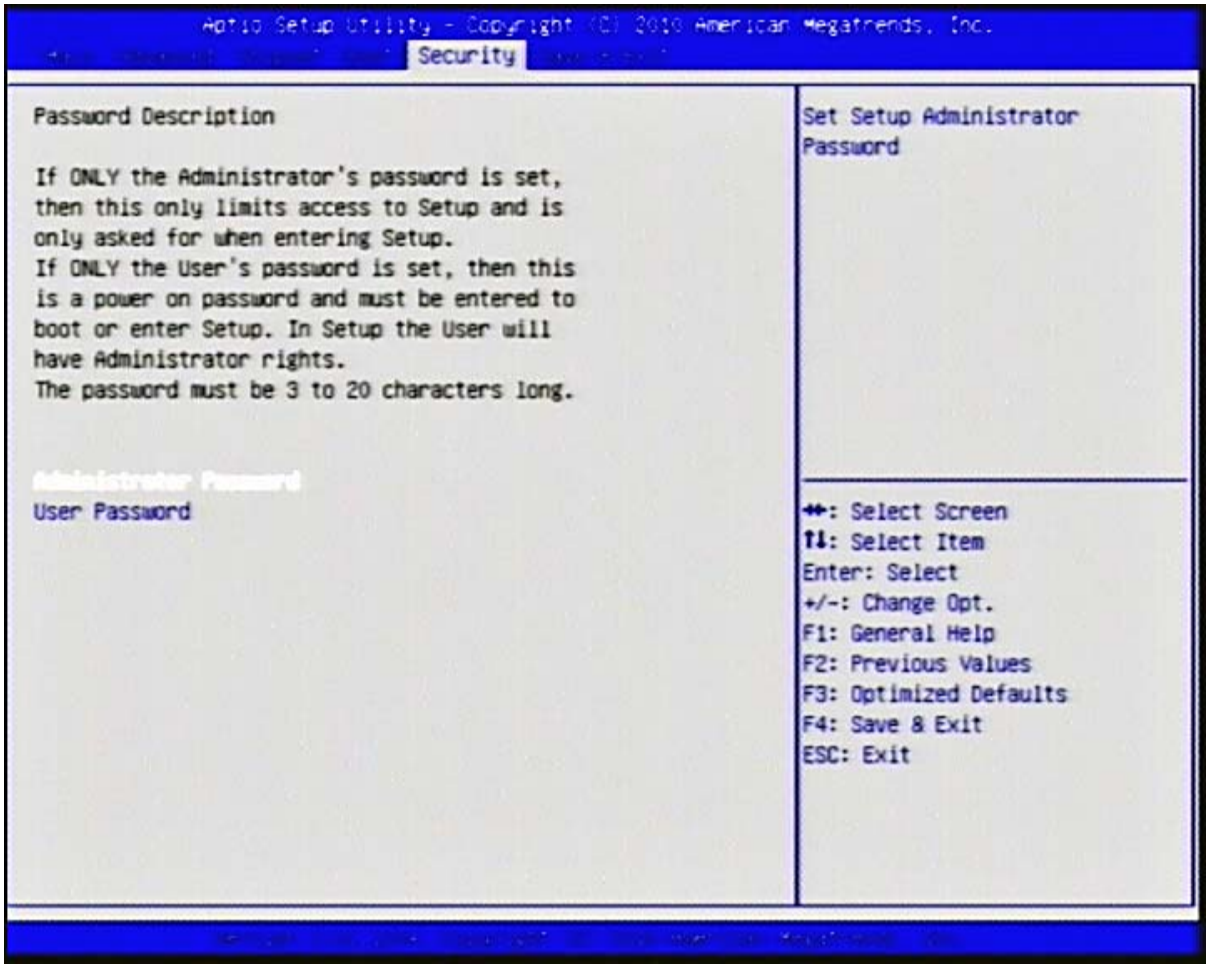
Interrupt 19 is the software interrupt that handles the boot disk function. When enabled, this BIOS feature allows the ROM BIOS of these host adaptors to "capture" Interrupt 19 during the boot process so that drives attached to these adaptors can function as bootable disks. In addition, it allows you to gain access to the host adaptor's ROM setup utility, if one is available.

When disabled, the ROM BIOS of these host adaptors will not be able to "capture" Interrupt 19. Therefore, you will not be able to boot operating systems from any bootable disks attached to these host adaptors. Nor will you be able to gain access to their ROM setup utilities.

Choices: Disabled, Enabled.

4.6 Security

Use this menu to set supervisor and user passwords.


Security
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password must be 3 to 20 characters long.
User Password
Set Setup Administrator Password
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Administrator Password

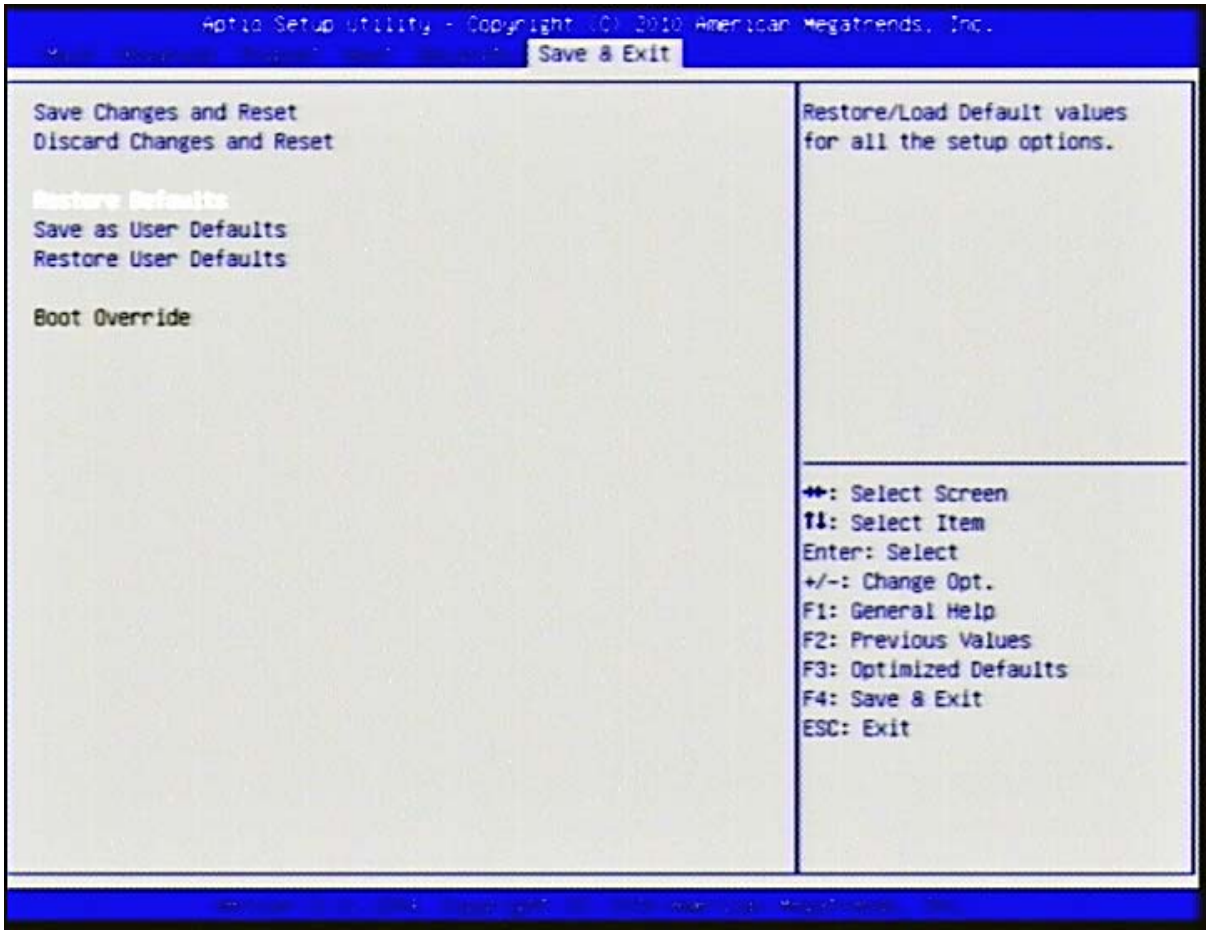
Administrator Password controls access to the BIOS Setup utility. These settings allow you to set or change the supervisor password.

User Password

User Password controls access to the system at boot. These settings allow you to set or change the user password.

4.7 Save & Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.



Save Changes and Reset

Exit System Setup and save your changes to CMOS. Pressing <Enter> on this item asks for confirmation: Save configuration and reset.

Discard Changes and Exit

Abandon all changes and exit the Setup Utility.

Restore Defaults

Use this menu to load the default values set by the SBC manufacturer specifically for optimal performance of the SBC.

Save as User Defaults
Save all changes and considers as User's default.

Restore User Defaults
Restore the setting according to User's default.

Chapter 5
Troubleshooting

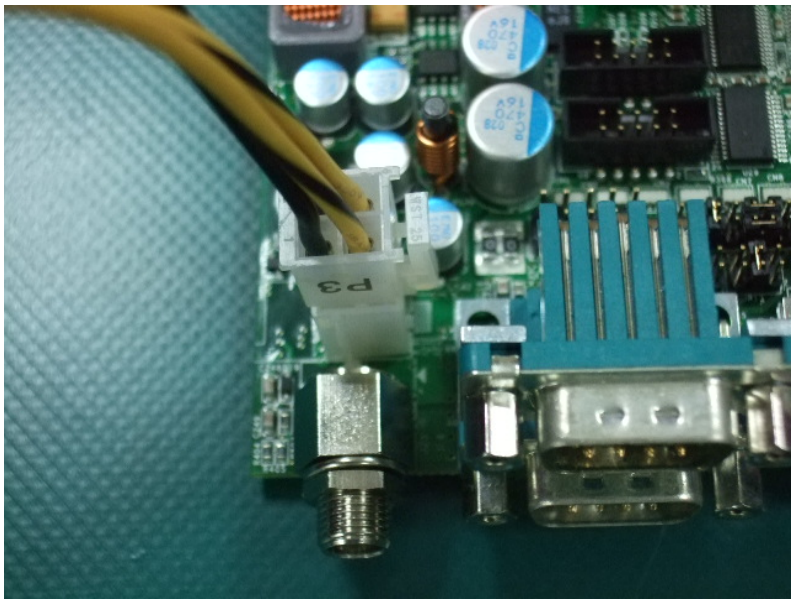
This chapter provides a few useful tips to quickly get WADE-8075 running with success. As basic hardware installation has been addressed in Chapter 2, this chapter will primarily focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

5.1 Hardware Quick Installation

ATX Power Setting

DC 12V Power Input

WADE-8075 supports DC12V input only.



5.2 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on ATX power. CPU, CPU Fan, 204-pin DDR3 SDRAM, keyboard, mouse, floppy drive, SATA hard disk , device power cables, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with WADE-8075, it is recommended, when going with the boot-up sequence, to hit "DEL" key and enter the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

Loading the default optimal setting
When prompted with the main setup menu, please scroll down to "**Restore Defaults**", press "Enter" and "Y" to load in default optimal BIOS setup. This will force your BIOS setting back to the initial factory configuration. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting any time when system appears to be unstable in boot up sequence.

Improper disable operation
There are too many occasions where users disable a certain device/feature in one application through BIOS setting. These variables may not be set back to the original values when needed. These devices/features will certainly fail to be detected.

When the above conditions happen, it is strongly recommended to check the BIOS settings. Make sure certain items are set as they should be. These include the COM1/ COM2 ports, USB ports, external cache, on-board VGA and Ethernet.

It is also very common that users would like to disable a certain device/port to release IRQ resource. A few good examples are

Disable COM1 serial port to release IRQ #4
Disable COM2 serial port to release IRQ #3

Etc…

A quick review of the basic IRQ mapping is given below for your reference.

IRQ#	Description
IRQ #0	**System Timer**
IRQ #1	**Keyboard Event**
IRQ #2	**Usable IRQ**
IRQ #3	**COM2**
IRQ #4	**COM1**
IRQ #5	**Usable IRQ**
IRQ #6	**Diskette Event**
IRQ #7	**Usable IRQ**
IRQ #8	**Real-Time Clock**
IRQ #9	**Usable IRQ**
IRQ #10	**Usable IRQ**
IRQ #11	**Usable IRQ**
IRQ #12	**IBM Mouse Event**
IRQ #13	**Coprocessor Error**
IRQ #14	**Hard Disk Event**
IRQ #15	**Usable IRQ**

It is then very easy to find out which IRQ resource is ready for additional peripherals. If IRQ resource is not enough, please disable some devices listed above to release further IRQ numbers.

5.3 FAQ

Installation Problem
Question: I forget my password of system BIOS, what am I supposed to do?

Answer: You can simply short 2-3 pins on JP4 to clean your password.

Note:
Please visit our technical web site at
http://www.portwell.com.tw
For additional technical information, which is not covered in this manual, you can mail to tsd@mail.portwell.com.tw or you can also send mail to our sales, they will be very delighted to forward them to us.

System Memory Address Map

Each On-board device in the system is assigned a set of memory addresses, which also can be identical of the device. The following table lists the system memory address used.

Memory Area	Size	Description
0000-003F	**1K**	**Interrupt Area**
0040-004F	**0.3K**	**BIOS Data Area**
0050-006F	**0.5K**	**System Data**
0070-0E2E	**54K**	**DOS**
0E2F-0F6B	**5K**	**Program Area**
0F6C-9EBF	**573K**	**【Available】**
First Meg	**-- Conventional memory end at 635K --**	
9EC0-9FFF	**5K**	**Extended BIOS Area**
A000-AFFF	**64K**	**VGA Graphics**
B000-B7FF	**32K**	**Unused**
B800-BFFF	**32K**	**VGA Text**
C000-CD9F	**54K**	**Video ROM**
CDA0-EFFF	**137K**	**Unused**
F000-FFFF	**64K**	**System ROM**

Interrupt Request Lines (IRQ)

Peripheral devices can use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

IRQ#	Current Use	Default Use
IRQ 0	**System ROM**	**System Timer**
IRQ 1	**System ROM**	**Keyboard Event**
IRQ 2	**【Unassigned】**	**Usable IRQ**
IRQ 3	**System ROM**	**COM2**
IRQ 4	**System ROM**	**COM1**
IRQ 5	**【Unassigned】**	**Usable IRQ**
IRQ 6	**System ROM**	**Diskette Event**
IRQ 7	**【Unassigned】**	**Usable IRQ**
IRQ 8	**System ROM**	**Real-Time Clock**
IRQ 9	**【Unassigned】**	**Usable IRQ**
IRQ 10	**【Unassigned】**	**Usable IRQ**
IRQ 11	**【Unassigned】**	**Usable IRQ**
IRQ 12	**System ROM**	**IBM Mouse Event**
IRQ 13	**System ROM**	**Coprocessor Error**
IRQ 14	**System ROM**	**Hard Disk Event**
IRQ 15	**【Unassigned】**	**Usable IRQ**